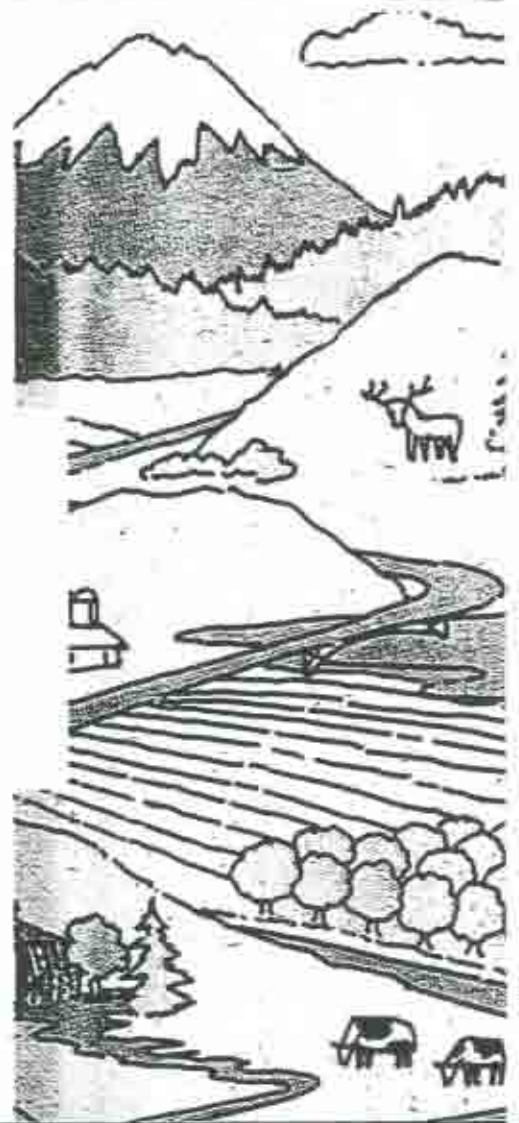


THE ART AND SCIENCE OF
DESIGNATING
URBAN GROWTH AREAS

PART II

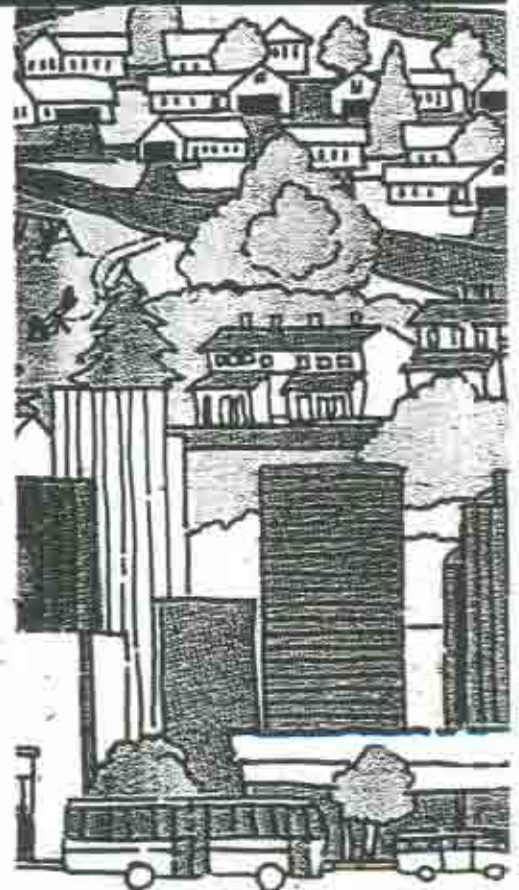
*SOME SUGGESTIONS FOR
CRITERIA AND DENSITIES*



WASHINGTON STATE GROWTH MANAGEMENT PROGRAM



Department of Community Development
Chuck Clarke, Director



**THE ART AND SCIENCE OF
DESIGNATING
URBAN GROWTH AREAS**

PART II

*SOME SUGGESTIONS FOR
CRITERIA AND DENSITIES*

**State of Washington
Department of Community Development
Growth Management Division**

March 1992

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Introduction

The Washington Growth Management Act (GMA) provides Washington communities with a number of tools to help them manage their growth. The GMA includes the Growth Management Act of 1990 (sometimes referred to by its bill number, ESHB 2929) and the 1991 amendments to the Growth Management Act (also referred to by its bill number, ReSHB 1025). One of the major tools provided by the GMA to implement your community's growth management objectives is the establishment of an Urban Growth Area (UGA). Establishing that UGA involves drawing a line which separates urban areas and rural or resource areas. The UGA allows communities to direct urban growth to areas within the UGA where that growth can be supported with adequate urban facilities and services. Outside of the UGA, the GMA encourages setting aside other areas for rural uses and resource conservation and environmental protection, which require a much lower level of facilities and services. Towns, cities, and counties which plan under the GMA must coordinate with each other to designate UGAs as a part of their comprehensive planning process.

The decision about which lands should be designated as UGAs and which lands should be reserved for rural and resource uses is one which needs to be made with great care. That decision should be based on solid criteria to:

- ♦ maximize the effectiveness of the UGA toward accomplishing growth management objectives;
- ♦ guide consistent land use planning decisions;
- ♦ treat property owners equitably; and
- ♦ assure the boundary is legally defensible.

Once established, the type, character, and intensity of development permitted within the UGA will be very different from that encouraged in rural areas or resource lands. Although the UGA will provide greater certainty about how property can be developed in the future, the new designations may not match property owners' previous expectations. Because the location of the UGA directly affects a property owner's future options for developing and using land, land values also may be affected.

In some areas, the decision about where that urban/rural line should fall will be obvious. Areas which are already developed at urban levels or surrounded by urban development can readily be placed within an UGA. In other areas, conflicting desires of various property owners will make that task nearly impossible unless the community can agree upon and apply a consistent set of criteria to guide those decisions.

The UGA is not an end unto itself, but a means to achieving the community's growth management objectives. Criteria based on **community objectives** will enhance the effectiveness of the UGA toward achieving those objectives. The densities which you apply within urban, rural, and resource areas will also have a variety of effects. For example, they will affect:

- ◆ how much total land is needed for urban development;
- ◆ housing affordability;
- ◆ the cost of providing services;
- ◆ the economic viability of resource uses;
- ◆ the ability to protect critical areas; and
- ◆ the provision of quality living environments.

Again, decisions about urban and rural densities should be made with care and used to promote community objectives.

This guidebook is not a comprehensive manual for designing an UGA, but is instead an aid for addressing several "sticky" issues in designing UGAs. The guidebook will address the following:

- ◆ suggest criteria which may help you in making the urban/rural call;
- ◆ examine which densities are appropriate for urban, rural, and resource areas and discuss the consequences of using different densities within those areas; and
- ◆ provide additional suggestions for "designing" densities to fit the urban or rural context.

A companion guidebook published by the Washington State Department of Community Development, Issues in Designating Urban Growth Areas: Part I, Providing Adequate Urban Area Land Supply, provides steps for analyzing whether vacant land is developable, suitable, and available for future development. Another guidebook published by the Department of Community Development, Shaping Your Future: A Guide to Designating an Urban Growth Area, provides a more general step-by-step guidance for designating the UGA.



Criteria for UGAs/Rural Area Designation (Or, a Place for Every Purpose)

UGA Criteria Should Be Based on Community Goals

Before developing specific criteria, your community will need to develop a vision for its future—for what urban areas and rural areas should be. That vision will be expressed as goals which help you move toward achievement of that vision. (See the guidebook Towards Managing Growth in Washington: A Guide to Community Visioning published by the Department of Community Development for more information about shaping a community vision.) Developing specific criteria will greatly facilitate the difficult job of making the urban/rural call. The criteria, when based on the goals you have developed, will provide specific measures for whether a particular choice will help you accomplish your goals for urban and rural areas. They will also help others to understand why you made the choices you made.

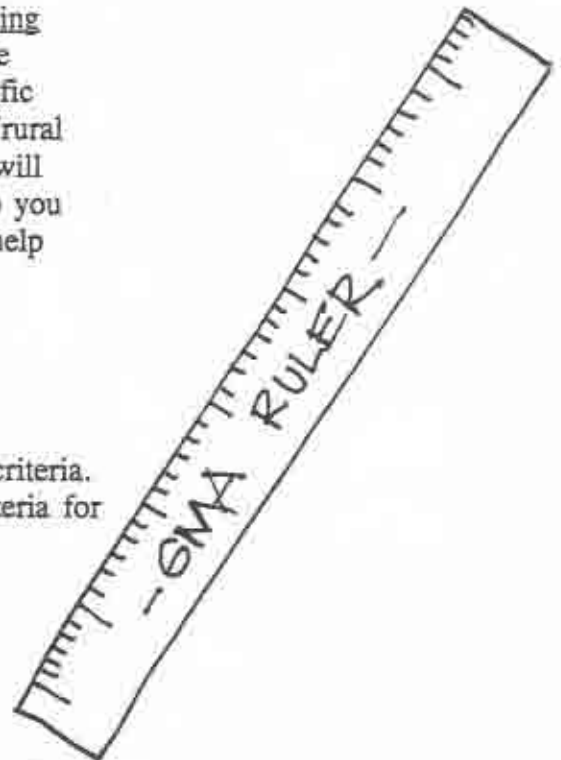
The GMA Provides Several Initial Criteria

The GMA provides a starting point for developing your own criteria. Section 11 of the GMA (36.70A.110 RCW) sets several initial criteria for lands which should be included in the UGA:

- ◆ Cities must be included in UGAs.
- ◆ Territory outside a city may be included only if it is already characterized by urban growth or adjacent to territory already characterized by growth.
- ◆ Urban growth should be located first in areas characterized by urban growth which have existing public facility and service capabilities and second in areas characterized by urban growth that will be served by existing and additional needed facilities and services.
- ◆ The sum total of UGAs within a county must be of sufficient size to permit the urban growth that is projected to occur in the county for the next 20 years.

In addition to Section 11, several of the following goals (paraphrased below) stated in Section 2 of the GMA (70A.020 RCW) suggest the following additional criteria for locating UGAs:

- ◆ Goal 1: Encourage development in urban areas where adequate public facilities exist or can be provided in an efficient manner.
- ◆ Goal 2: Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.



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- ◆ Goal 4: Encourage the availability of affordable housing to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock.
 - ◆ Goal 12: Ensure that those public facilities and services necessary to support development shall be adequate to serve the development at the time the development is available for occupancy and use without decreasing current service levels below locally established minimum standards.

Other Communities Provide Useful Criteria for Establishing UGAs

A number of communities in Washington and other states already have UGAs in place and have developed criteria to help in establishing the UGA. Although these criteria were developed for use in other states or to implement local objectives developed before the GMA, they relate well to GMA goals and provide useful examples for other communities. A summary discussion of individual criteria extracted from these communities, which could be helpful in implementing growth management goals, follows.

1. The area has adequate buildable land area to meet projected 20-year urban land use needs, while providing ample choice of locations for a variety of housing types and supporting uses. Preferably, the area will contain a supply of large, vacant parcels. (See the Issues in Designating Urban Growth Areas, Part I: "Providing Adequate Urban Area Land Supply" guidebook published by the Department of Community Development for additional information on this topic.)
2. The area is either already developed, firm commitments have been made to development, or the area is located adjacent to existing cities or high-intensity population and employment centers. In addition to actual urban development on the ground, extensive subdivision platting at urban densities may have already occurred. In Washington, these plats are vested (property owners have a right to proceed with development) once a completed application has been accepted. It probably makes sense to recognize and plan for these vested urban developments. Utility service areas and local improvement districts represent other commitments to urban development. Although local governments can choose to limit or postpone development, even in areas where these types of commitments exist, they should be considered in locating urban growth limits. Communities should explore possible legal complications when limiting growth in such areas.

-
3. Public facilities and services are in place or can be provided at reasonable cost to accommodate urban growth. If public facilities are not already in place, there at least should not be any major physical or other barriers to extending them within your plan's 20-year time frame. The extent and location of the UGA may also be limited by the community's ability to economically provide the full range of urban services within the UGA. If planned improvements, as reflected in the capital facilities plan element, are not adequate to provide the level of service that a community wants, the UGA will need to be adjusted. Not only should facilities be available or capable of extension, but they should also have adequate capacity to support planned urban development. It should be possible to serve this new development without reducing current service levels in existing developed areas. Thurston County, Washington and communities in Oregon and Florida have criteria that also emphasizes UGA location which allows orderly, efficient, cost-effective extension of facilities and services. The greatest efficiency will be achieved to the extent that growth can be guided to existing developed areas or "committed" lands where excess service capacity exists. When growth is guided to these areas, the costs of new infrastructure and spread-out service areas can be reduced. In addition, service costs for residences and businesses can be reduced when under-utilized facilities are more fully utilized. For more information on this concept, see Planning Small Town America (Ford). According to the GMA, public facilities include transportation-related facilities, water, storm and sanitary sewer systems, parks and recreation facilities, and schools. Public services include fire protection and suppression, law enforcement, public health, education, recreation, environmental protection, and other governmental services.
 4. Natural features and land characteristics are capable of supporting urban development without significant environmental degradation. A number of communities using UGAs are applying a variation on this criteria. Although these communities generally anticipate that some environmentally constrained areas will occur within the UGA, the area should generally be suitable from an environmental standpoint. Large blocks of environmentally constrained area may best be excluded from the UGA.
 5. The area does not have high current or future value for agriculture, forestry, or mineral production and should be able to develop without having a detrimental impact on nearby resource lands. The Minimum Guidelines (365-190 WAC) provides guidance on suggested criteria to cities and counties in Washington on designating resource lands and critical areas. Thurston County defines lands with value for agriculture and forestry as those a) with prime or unique soils classification (as classified by the Soil Conservation Service); b) actively managed for farm or forestry use; c) enrolled under

agricultural or forestry tax program; and d) not currently served with utilities. Oregon's state legislation emphasizes agricultural retention and gives highest retention priority to Class I soils and lowest retention priority (and therefore highest urban-use priority) to Class VI soils. Note that the 1991 amendments to the GMA (ReSHB 1025) preclude designing forest or agricultural lands within urban areas unless the local community establishes a program authorizing transfer or purchase of development rights.

6. Opportunities exist for a local balance of housing, jobs, and shopping for convenient transportation and energy efficiency. To minimize the amount of miles traveled between where people live and where they work, and to reduce the overall impact of new residential development on the transportation network, residential areas should be located convenient to employment centers. Land area provided for employment (industrial and office) development should be balanced with land area for residential development. In general, you do not need an industrial or commercial land supply which is greater than your projected population can support at full buildout. Conversely, residential development without a matching supply of employment and retail services will result in residents traveling further to work and shop.
7. The UGA should promote a compact urban development pattern to minimize the fiscal and environmental impacts of growth. Florida communities are particularly vigilant about avoiding "sprawl" forms of development (scattered, untimely, poorly planned), such as "leap frog" (developments sited away from the existing urban area), and "strip" (high amounts of intensive development in a linear pattern located along both sides of an arterial). Numerous studies indicate that these configurations are more costly to serve and can readily disrupt critical areas and resource lands. (For examples, see Dr. James E. Frank's *The Costs of Alternative Development Patterns: A Review of the Literature*.)



8. Take advantage of physical features such as major drainages, where possible, to help provide a clear separation between urban and rural areas. Using physical features to define a logical boundary can help prevent a gradual chipping away at the boundary in the future. Where a clear physical feature does not exist, following a property line, quarter section line, or other legally defined line will reduce confusion about the line location and be easier to administer.

To establish an orderly phasing of development within UGAs, communities may wish to distinguish ten and 20-year UGAs. The longer term UGA should be able, ultimately, to meet all of the criteria of the short-term UGA. However, separate criteria may distinguish long-term (or future) growth areas as: (1) not yet committed to urban development; (2) currently outside of utility service areas; and (3) containing significant amounts of vacant land in large parcels to facilitate future land assembly and development potential. A later section describes special density considerations and treatment of future urban areas.

Several Communities Offer Examples of Rural Criteria

King and Whatcom Counties have also specified separate criteria for designating rural areas. These criteria tend to be the opposite of their urban area criteria. King County's criteria, for instance, are as follows:

- ◆ Good opportunities exist for small-scale farming and forestry.
- ◆ A rural designation will help buffer nearby resource lands from conflicting urban uses.
- ◆ There are major physical barriers to providing urban services at reasonable cost.
- ◆ Significant constraints make the area generally unsuitable for intensive urban development.



Whatcom County uses similar criteria and specifies the environmental constraints of concern in greater detail:

- ◆ Those areas that possess a very low residential density and are compatible with existing land use plans.
- ◆ Those areas where features of the physical environment (i.e., lack of adequate groundwater, slow permeability rates, and seasonal ponding) require very low densities in order to mitigate the impacts of these physical constraints. Also, those areas where there exists the possibility of utilization of a natural resource (i.e., soils, sand/gravel, or coal).
- ◆ Those areas where there are no planned capital improvements to community facilities, utilities, or transportation systems.

Whatcom County also distinguishes areas appropriate for rural residential uses rather than resource uses and applies the following criteria to help define these areas:

- ◆ Lands currently served or planned to be served with only a partial range of urban level services;

- ◆ Lands where low-density residential development currently exists and where such densities are planned to continue in the future; and
- ◆ Lands that contain soils that are generally not considered as suitable for commercial agriculture, forestry, or mineral extraction.

Minimum Guidelines Provide Guidance for Developing Resource Area Criteria

The GMA requires local communities to classify, designate, and conserve three types of resource lands—agricultural, forest, and mineral lands. The GMA is primarily concerned with those resource lands having "long-term commercial significance" ("long-term commercial significance" is defined in the GMA to include both natural and social factors). The "Minimum Guidelines" (WAC 365-190) prepared by the Department of Community Development provide guidance and criteria for classifying and designating each type of resource land. In some cases, the guidelines suggest that local governments use an existing classification system. In other cases, the guidelines strongly recommend using or building on certain existing classification systems and supporting data. The guidelines provide two types of criteria. The first type helps evaluate whether the area has a high natural resource value (e.g., good soils for farming and forestry or good mineral deposits). The second type helps evaluate whether the land's relation to existing population centers and services and the existing land use pattern in the vicinity make it better suited for urban growth.



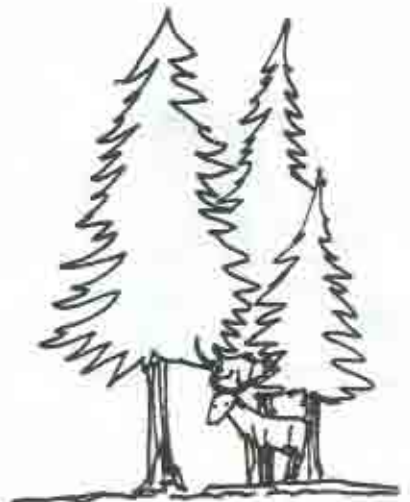
Agricultural Lands. Criteria for agricultural lands classification are contained in the Minimum Guidelines (WAC 365-190-050). Local governments can use the land-capability classification system defined in the United States Department of Agriculture Soil Conservation Service Handbook No. 210. The categories defined in the handbook consider "growing capacity, productivity, and soil composition of the land." The guidelines suggest the local communities should use the classifications of prime and unique farmland soils in defining agricultural lands of long-term significance or explain the rationale for using a system other than the Minimum Guidelines to the Department of Community Development. Local governments may classify additional lands of local significance, such as cranberry bogs, after consulting with the local conservation district board and the local agricultural stabilization and conservation service committee.

The Department of Agriculture's handbook criteria also help local communities to consider "the combined effects of proximity to populated centers and the possibility of more intense uses of the land" as indicated by the following:

- (a) and (c) The availability of public facilities and services. (Does an urban level of facilities and services exist or can they be readily made available?)
- (b) Tax status. (Are the lands in the open space program taxed for farm use or are they taxed for fair market value?)
- (d) Relationship or proximity to urban areas. (Is the land well-situated to become part of an urban growth area?)
- (e) Predominant parcel size. (Are parcels generally large enough to make resource management feasible?)
- (f) Land settlement patterns and their compatibility with agricultural practices. (Are existing nearby uses compatible or can resource areas be buffered from them?)
- (g) Intensity of nearby uses. (Is the intensity of nearby uses compatible?)
- (h) History of land development permits issued nearby. (Have permits been granted and has vesting for urban uses occurred?)
- (i) Land values under alternative uses. (Do land values indicate potential for urban development or successful agricultural operation?)
- (j) Proximity of markets. (Does the land's location relative to market enhance or hinder specific local agricultural operations?)

Forest Lands. The criteria for forest land classification are also contained in Minimum Guidelines (WAC 365-190-060). Local governments should use the Department of Revenue's private forest land grades provided in WAC 458-40-530. These grades will help local governments to evaluate the growing capacity, productivity, and soil composition to determine the long-term commercial significance for forest production. Generally, the higher grade lands should be classified as forest land. Lower grade lands may also be included. Local governments must decide which categories should be classified as forest lands based, in part, on local conditions and considerations.

Forest lands not designated for "long-term commercial significance" are likely to convert to other land uses.



Local governments should also consider the effects of proximity to population centers and the possibility of more intense uses of the land as indicated by:

- ♦ the availability of public services and facilities conducive to the conversion of forest land;
- ♦ the proximity of forest land to urban and suburban areas and rural settlements (forest lands of long-term commercial significance are located outside the urban and suburban areas and rural settlements);
- ♦ the size of the parcels (forest lands consist of a predominantly large possibility of more intense uses of the land as indicated by parcels);
- ♦ the compatibility and intensity of adjacent and nearby land use and settlement patterns with forest lands of long-term commercial significance;
- ♦ property tax classification (property is assessed as open space or forest land pursuant to 84.33 or 84.34 RCW);
- ♦ local economic conditions which affect the ability to manage timberlands for long-term commercial production; and
- ♦ history of land development permits issued nearby.

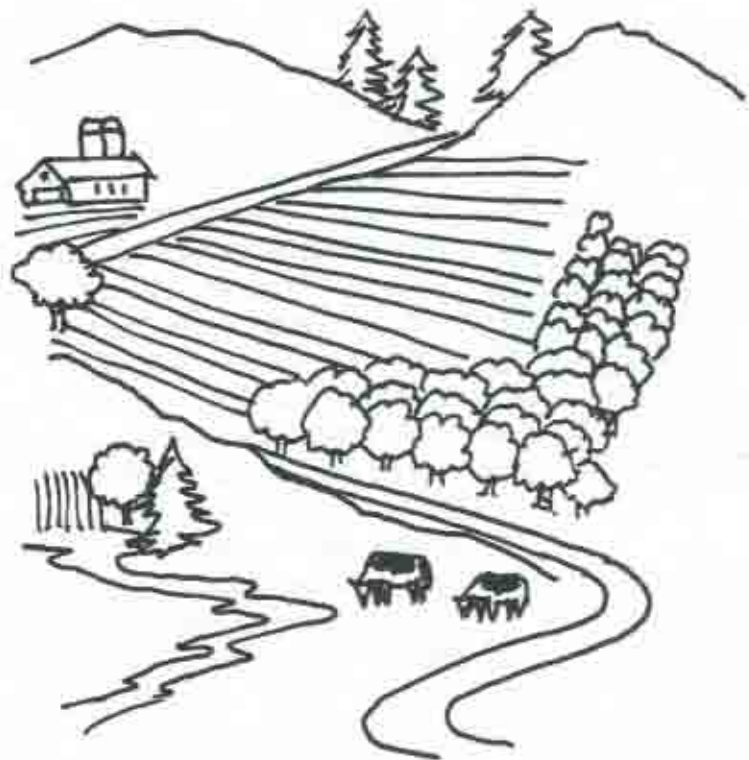
Mineral Resource Lands. The criteria for mineral resource lands classification appears in the Minimum Guidelines (WAC 365-190-070). The guidelines in this section will help local governments to evaluate the type, quality, and extent of mineral resource lands needed to ensure an adequate future supply while maintaining a balance of land uses. The guideline criteria are as follows:



"Classification criteria. Areas shall be classified as mineral resource lands based on geologic, environmental, and economic factors, existing land uses, and land ownership. The areas to be studied and their order of study shall be specified by counties and cities.

- (a) *Counties and cities should classify lands with long-term commercial significance for extracting at least the following minerals: Sand, gravel, and valuable metallic substances. Other minerals may be classified as appropriate.*
- (b) *In classifying these areas, counties and cities should consider maps and information on location and extent of mineral deposits provided by the Washington State Department of Natural Resources and the United States Bureau of Mines. Additionally, the Department of Natural Resources has a detailed minerals classification system that counties and cities may choose to use.*

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- (c) *Counties and cities should consider classifying known and potential mineral deposits so that access to mineral resources of long-term commercial significance is not knowingly precluded.*
- (d) *In classifying mineral resource lands, counties and cities shall also consider the effects of proximity to population areas and the possibility of more intense uses of the land as indicated by the following:*
- (i) *General land use patterns in the area;*
 - (ii) *Availability of utilities;*
 - (iii) *Availability and adequacy of water supply;*
 - (iv) *Surrounding parcel sizes and surrounding uses;*
 - (v) *Availability of public roads and other public services;*
 - (vi) *Subdivision or zoning for urban or small lots;*
 - (vii) *Accessibility and proximity to the point of use or market;*
 - (viii) *Physical and topographic characteristics of the mineral resource site;*
 - (ix) *Depth of the resource;*
 - (x) *Depth of the overburden;*
 - (xi) *Physical properties of the resource including quality and type;*
 - (xii) *Life of the resource; and*
 - (xiii) *Resource availability in the region.**



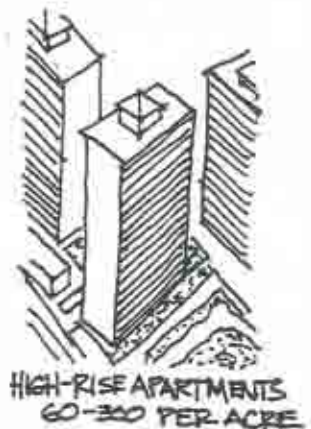
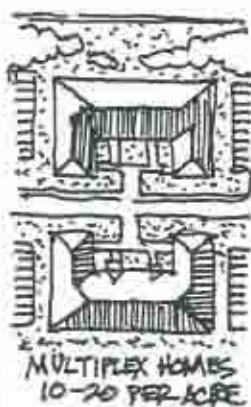
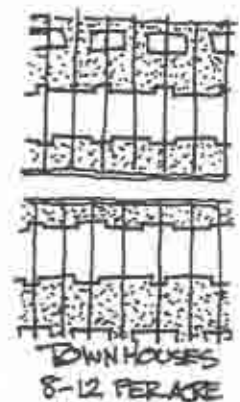
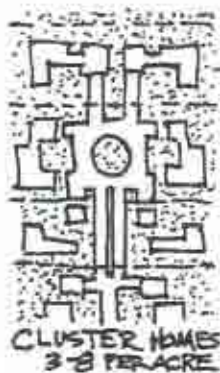
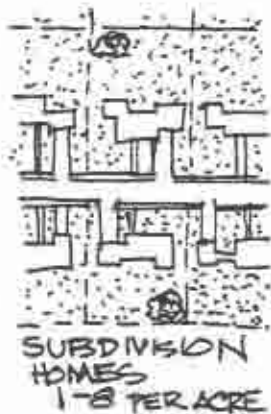
Setting Appropriate Densities for Urban Growth Areas and Rural Areas (Or, Density by Design)

Understanding Densities

Density can be defined as the number of people or amount of activity in a specific area. Density is most often used in discussing residential areas. In residential areas, density is the number of residential dwelling units per a specified area, usually expressed in acres. In discussions about density, it is also important to know whether we are talking about gross or net densities. Gross density means the total number of dwelling units divided by the total land area of the site or area, excluding nothing. Net density means the total number of dwelling units divided by the net area of the lot or site. The net area typically excludes roads, public open spaces, and community facilities including utility rights-of-way. Critical areas (environmentally sensitive areas) may also be excluded. It is important to carefully define excluded areas in individual ordinances to avoid misunderstandings. The difference between net and gross densities can be considerable, since area for roads and parking alone may often require 20 percent of the site.



In planning residential areas, it is also helpful to be aware of the typical densities associated with different types of residential uses. Three more general categories of housing types are useful to distinguish. The most common variety, detached housing, is that in which each dwelling unit is in its own structure, on its own site, and normally occupied by a single household or family. In attached housing, each unit has a separate door entrance, but two or more units are joined side-by-side or one above the other. Apartments meet a similar definition or may provide multiple dwelling units on numerous floors in one building. Several more specific residential types are also useful to distinguish. "Estate homes" are homes generally found on multiple acre lots. Conventional subdivision housing is typically in the range of one to eight units per acre, with the higher densities found more typically in town or city settings. Cluster developments commonly display these higher single-family densities. Duplex homes and townhouses in Washington State commonly fall within the range of eight to 12 units per acre. Small multiplex apartments or condominiums (one- to two-story) tend to range from 12 to 24 units per acre. Garden apartments and low-rise (two- to three-story) apartments commonly range from 15 to 40 units per acre. Mid-rise and high-rise apartments, found in more intensely developed urban areas, range from 30-60 to 60-300 units per acre, respectively (adapted from Hamil, Keene, Kinsey and Lewis, 1989).



A VARIETY OF RESIDENTIAL TYPES AT
A VARIETY OF DENSITIES

Densities Should Be Related to Changing Public Values and Needs

James W. Wentling, in his introduction to Density By Design, notes that "the modern homebuyer's overwhelming preference for the single-family detached home is rooted in the country's heritage as an independent, agrarian nation. The popular view of 'the American Dream' as a single, freestanding dwelling is most likely a response to idyllic memories of the farmhouse."

Although this vision of the "American Dream" clearly persists today, we are seeing increasing demands and trends toward higher housing densities. These trends are driven by a variety of factors. The economy is no longer focused on agriculture. As Wentling points out, housing costs during the 1980s rose at a faster pace than the overall consumer price index. As a direct result, fewer families are able to purchase their homes, particularly the detached "dream home." Demographic trends, such as the aging of the "baby boom," the trend toward increasingly smaller (even single person) household sizes, and faster-paced lifestyles translate into a demand for smaller, more maintenance-free housing. Detached homes increasingly tend to be located farther away from the work place in order to maintain affordability. As a result, many homebuyers now place a higher premium on the increased leisure time over space, which smaller, close-in (shorter commute), maintenance-free housing more readily provides.

The net result of these changing trends, affordability, and lifestyle preferences is that communities will need to provide housing for an increasing variety of needs. As Wentling concludes, "The challenge to housing professionals (and local governments) will be to satisfy this higher density standard while maintaining quality design and desirable living environments."

Communities Should Set Densities Which Promote Plan Objectives



A key point to remember in determining appropriate densities for urban and rural areas is to assign densities which support your growth management and other plan objectives. For instance, you can apply lower densities in rural areas and in resource areas where urban services are not available and where you seek to maintain resource production or protect sensitive areas. You can apply higher densities in urban areas where you want to promote transit use or encourage redevelopment. Urban, rural, and resource areas serve distinctly different purposes calling for distinctly different levels of densities and levels of services.

Washington State's GMA defines UGAs as areas where growth should be encouraged. It is in UGAs where most of the demand for housing, and particularly affordable housing opportunities, will be met. In contrast, Section 7 of the GMA (36.70A.070 RCW) states that rural areas include lands which are not designated for urban growth. They may include small-scale agriculture, forest, or mineral use where compatible. However, it is the resource land designation which will emphasize conserving resource lands having long-term commercial significance for productive use by resource industries. Rural areas can sustain other uses which are compatible with the character of these rural uses, such as very low-density residential development. The densities which you choose to apply in these areas should support the different functions of these areas.

The Case for Setting Higher Densities in Urban Areas

As noted in the introduction, the densities you apply within urban areas will have a variety of effects. They will affect the cost of providing services, how much total land is needed for urban development, housing affordability, and the ability to protect critical areas and provide quality living environments. These relationships will be discussed in greater detail in this section.

Density and Efficient Services. Increasingly, communities are rethinking their density designations within urban areas in an effort to reduce the costs of providing services. For example, the Twin Cities region in Minnesota exhibits one of the lowest average densities of the 25 largest U.S. Metropolitan areas. They have found that:

"as a consequence of low-density development patterns, cities were forced to build facilities (sewer trunks in particular) at tremendous expense for scattered, small pockets of urban development."

- Terry Jill Lasser, Urban Land Magazine (Minneapolis, Minnesota) -

Closer to home, Olympia, Washington found that:

"From 1980 to 1987, 73 percent of the growth was outside the cities. Most of this development has been low-density suburban sprawl. It has created demands for urban services and utilities farther and farther out into the county. Not only is this pattern inefficient, it threatens natural resource lands we need for farming and forestry."

- Olympia Comprehensive Plan, 1988 -

A 1980 study, conducted in California by the Sacramento Planning staff in the wake of Proposition 13, found that "to cover full marginal costs of services, the county would have to recover development fees of

\$10,000-15,000 per unit (at six units per acre) for residential projects beyond the urban service boundary. Fees would average \$3,000 per unit inside the boundary." The services considered were those primarily funded by property taxes such as schools, fire protection, recreation, drainage, and street lighting. (Johnson, Schwartz and Tracy)

Dr. James E. Frank, Florida State University, reviewed and updated a number of the major comparative cost of development studies for the Urban Land Institute. He concluded that each of the studies was flawed in its own way, but that "taken together the studies reach similar conclusions: development spread out at low densities increases the costs of public facilities." He also suggests that houses built in sprawling developments may cost 40 to 400 percent more to serve than they might if located in a more compact configuration, closer to major facilities, and the developments incorporated a variety of housing types and densities.



A number of studies and sources point to a density threshold necessary to support regular transit service. One such study found that "densities in the two to seven dwelling units per acre range produced only marginal use of public transportation...densities of seven to 30 dwelling units per acre were necessary to sustain significant transit use" and "produced not only a dramatic increase in transit use, but also a sharp reduction in auto travel" (Pushkarev and Zupan). The Municipality of Metropolitan Seattle (Metro) in King County endorses a threshold seven unit per acre net density to justify bus routes with 30-minute service. This transit threshold is a major justification offered by King County in establishing an urban area average net density goal of seven to eight units per acre. (King County Comprehensive Plan, 1985)

A density threshold is less readily established for another major urban facility -- sewer. The cost of actually constructing and connecting to sewers is usually born by the homeowner. The main economic threshold then becomes "what burden is the homeowner willing to pay?" Sewer providers also bear additional costs for treatment with lower densities. Because of the greater length of pipe per capita in lower density areas, more infiltration and greater treatment costs result from low densities. (Bob Hirsch, Metro, King County)

State septic tank regulations require a minimum 12,500 square feet lot size for septic tank use under ideal soil conditions for health reasons. Residential developments of two to three units per acre or more, generally must rely on sewer for waste disposal. Lower densities may require sewer if conditions are less than ideal (WAC 248-96).

Local governments should recognize that, where permitted, the lower costs of septic tanks may provide an incentive to develop at lower densities, leading to the sprawl development discussed in the next section.

Density and Land Consumption. Intuitively, the lower the density, the greater the amount of land area that will be needed to accommodate the same number of people. A larger UGA and a greater amount of land will be needed, if you apply lower densities within urban areas. Less land will then be available for rural and resource uses.

Oregon communities are all too familiar with this concept. A recently completed case study of four Oregon communities found that they were falling short of densities assumed in establishing their UGAs. As a result, these communities are having to go back and expand their UGAs at an earlier point of time than originally anticipated (Oregon Department of Community Development, 1991). Similarly, Thurston County found that because land was being developed at lower densities (three to four units per acre) than allowed, the urban area was being used up faster than anticipated.

The Florida Department of Community Affairs defines densities between one unit per ten acres and two units per acre to be "sprawl" development and cautions that among other problems sprawling, low-density, single-dimensional development "promotes an inefficient and unattractive use of developable land and frequently destroys significant environmental and natural resources."

Frequently, newer developments at the urban fringe are developing at lower densities than a community's existing average densities. A San Francisco Bay area organization, People for Open Space, point out that land now being developed in the San Francisco Bay area is planned at a much lower density than the existing average density (5.8 units per acre compared to 8 units per acre). They advocated maintaining the current average densities so that projected new development could be accommodated on 90,000 acres rather than the 120,000 acres which would be required to accommodate the new trend. They note that "simply by mixing housing types on vacant land instead of committing almost all of it to large-lot single-family housing as current plans do, we could meet almost all of the housing needs projected over the next 20 years and protect large areas of existing open space." A New Hampshire handbook, Society for the Protection of New Hampshire Forests, 1975, notes that "if the present settlement pattern of one acre or more for each house were to continue, over one-half of southern New Hampshire would be covered over by development in 25 years."

Background studies for King County's Comprehensive Plan projected that achieving an overall average density of seven units per acre, rather than the past trend of four units per acre, could cut the overall residential land consumption by 50 percent.

Higher Densities in Urban Areas Conserves More Land for Rural and Resource Use

Density and Housing Costs. Assuring an adequate supply of housing, which matches the income needs of Washington residents, can help avoid the increased housing costs sometimes associated with UGAs.

According to John Kelly, Oregon Department of Land Conservation, the need to meet the full range of housing needs is what drives the urban densities set for Oregon UGAs. Oregon's Land Conservation and Development Commission has rejected low-density provisions in many local plans, prompting density increases from about four units per gross buildable acre to six or more units in most urban areas. As a result, "the 1960s and 1970s trend (toward) lower and lower residential densities in suburban areas was checked. As local governments revised zoning to comply with state policy, residential zoning shifted back toward traditional, more affordable densities" (Charles Hales in Nelson, 1991).

According to Myles Palmeroy of the San Diego, California Planning Department, lots larger than 10,000 square feet are not considered urban in his jurisdiction. Because land is so costly in the San Diego area, a very large percentage of the new single-family development is occurring at the eight units per acre level.

Closer to home, Thurston County has set goals for residential density in its UGA at the range of four to 16 units per acre. A major reason is to provide affordable housing choices as well as efficient services. Thurston County encourages a variety of housing choices with most densities ranging from four to 16 units per acre (Thurston County Comprehensive Plan, 1988). Under current economic conditions, only the higher single-family densities (six to eight units per acre) and the multifamily density ranges (nine units per acre and up) may be affordable within urban areas for the average Washington resident. In King County, for instance, the affordable housing price for the median income family is \$110,000, while the average single-family home sales price for 1990, was \$170,000 ("Housing Affordability in King County," April 1991).

King and Thurston Counties are not the only Washington counties experiencing affordable housing problems. In fact, a 1990 report prepared by the Washington State Department of Community Development reports that "in only eight counties are median incomes sufficient to purchase an average-priced home . . ." (McIntire with Fitz).

Density and Environmental/Resource Concerns. The higher average densities are within UGAs, the greater the area which can be set aside for resource conservation and environmental protection. Urban growth boundaries can be drawn to exclude large blocks of constrained

areas. Lower rural area and resource land densities can help to protect these areas from incompatible urban development. Within every growth area, there will be critical areas (environmentally sensitive areas) which may be threatened by urban development. Lower densities can still be applied to protect these areas. For instance, King and Thurston Counties apply densities of two to three units per acre or less (down to one unit per five acres in King County) on environmentally constrained urban lands.



Suggested Ground Rules for Setting Urban Densities

The following is a summary of the concepts and lessons learned from other communities about setting UGA densities:

- ◆ Seek overall residential densities in growth areas which are high enough to allow for the efficient use of land and provision of services, provide affordable housing choices, and address other growth management goals. If you can agree on a net (constrained areas excluded) average (some areas higher, some areas lower) density as high as seven to eight units per acre, your community will benefit from greatly reduced service costs for a variety of services, greater area saved for rural and resource conservation, and a better opportunity for affordable housing. It is particularly important to specify higher density averages in centers and along transportation corridors where regular transit service is desired. With an average net density goal, it is still, of course, possible to use lower density ranges in more outlying areas or in rural towns and centers.
- ◆ Limit opportunities for expensive-to-serve and land-consumptive sprawl development, particularly in the two units per acre to one unit per ten acre range--those densities which fall in between urban and rural densities.
- ◆ Match the amount of area designated at different densities and the type of housing provided to the income needs of your present and future residents.
- ◆ Establish criteria to assure that higher densities are located near urban services having adequate capacity.
- ◆ Apply lower densities to protect sensitive, but buildable areas within UGAs. Refer to the Department of Community Development's Approaches to Designating and Protecting Critical Areas and the Minimum Guidelines (WAC 365-190) for guidance in the treatment of critical areas. Compilations of sensitive areas ordinances are also available on loan from the Municipal Research and Services Center. However, the specific measures and densities you employ will need to be tailored to your specific conditions.

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- ◆ In established neighborhoods, you may wish to employ densities consistent with established character. Consider, too, opportunities to marginally increase average densities using approaches which fit with existing character, such as the Tumwater and Olympia provisions for single-family conversions or accessory units (see Appendix A).
 - ◆ Consider using lower densities at the edges of UGAs to buffer rural and resource lands, where a clear physical separation cannot be provided. As an example, King County policies call for one unit per acre or less, densities in urban areas adjacent to rural areas, and one unit per ten acres in rural areas adjacent to resource lands.
 - ◆ Consider buffering commercial areas and more intense uses from single-family neighborhoods with intermediate density residential types, such as duplexes or townhouses. Whatcom County, as an example, has established a hierarchy of densities to provide a gradual transition of densities between different types of uses. However, take a balanced approach to the use of a transition between urban and rural areas or different intensity uses. As Florida's Department of Community Development cautions, too extensive use of low-end transition densities can result in an excess of sprawl densities, which are difficult to serve and consume additional land. To the extent possible, take advantage of physical features to buffer and separate different intensity designations.
 - ◆ Although retaining greater area in rural and open space may be a popular cause, higher densities are often controversial. Appendix B contains useful suggestions for achieving higher densities which better fit community character, making community acceptance more likely.

Suggestions for Achieving Higher Density Goals in Urban Areas

As mentioned above, one of the major problems the state of Oregon identified with its UGA program was that densities were falling short of allowed densities in most of its case study communities. King County has experienced a similar situation. The average density of newer developments within urban areas is just under three units per acre gross density. As a result, King County is exploring ways to move closer to its stated goal of seven to eight units per acre (*Draft King County Comprehensive Plan: The Last 5 Years*, 1991). A number of approaches may be useful in achieving density goals in your community's urban areas:

- ◆ The most direct approach is to set minimum densities (or maximum lot sizes). For example, Fort Collins has established a minimum density of two units per acre within its urban service area, because of the high cost to serve development below that level. Several California cities are also using minimum density provisions (such as Rohnert Park and Fremont—see Wentling and People for Open Space). The King County Council is also considering a motion which would direct that minimum density standards be established for residential projects.
- ◆ Florida's experience is that tough concurrency provisions help to promote higher densities. If development proceeds before urban levels of services are available, such as sewer, that development is likely to occur at lower densities.
- ◆ A related provision is to require lower levels of service standards in urban areas (particularly infill areas) than in rural areas. Making it relatively easier to develop in urban areas may promote higher density development.
- ◆ Consider allowing the addition of second units onto existing homes or structures. (See Appendix A for Tumwater's single-family conversion ordinance which allows additional units to be added with little outward appearance of additional density.)
- ◆ People for Open Space, a San Francisco Bay Area organization advocating compact development and greenbelts, suggest recycling land no longer needed for industry. The Bay area as an example, has a 60-year supply of land zoned for industry, which could instead provide additional housing in the city.
- ◆ Plan also for more housing along major streets and in downtown areas — areas where higher densities may be more acceptable than in other parts of the city.
- ◆ Adopt design standards and encourage design techniques which assure that higher density single-family and multifamily developments fit well into the existing community fiber. Good design can win greater community acceptance. See Appendix B for some very useful suggestions. Also recognize the need for adequate social support systems and facilities in these areas.



Establish Rural Area Densities Which Limit Service Costs and Help Maintain Rural Areas for Rural Uses

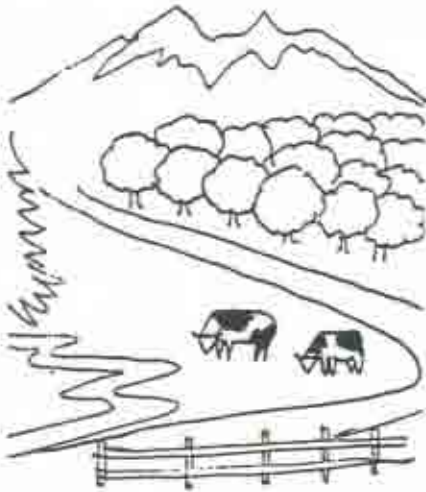
Rural areas can accommodate uses which do not require an urban level of public facilities and services. Rural areas can provide opportunities for farming, forestry, and mineral extraction where they can co-exist with other rural uses. Rural areas can offer opportunities for major open space areas and recreational uses and may contain extensive environmentally constrained areas or other areas unsuited for urban levels of development. In addition, rural areas can accommodate demand for a more country-like residential environment. Lower densities are desirable where only a rural level of services will be provided. Use of lower densities can also help buffer resource use areas from the more intensely developed urban land uses. The level of densities you assign should be related to the types of uses you are seeking to promote.

Rural Residential Development. Development trends in recent years suggest that there is a strong demand for rural residential development. Recreation homes can be a particular problem because of their tendency to locate near sensitive features, such as lakes, rivers, and sensitive mountain environments. Such development should not be encouraged to occur in a haphazard way, interspersed with resource uses. Instead, it may be better to plan for such uses in more limited areas (lacking high quality soils and resources) while reserving other areas for exclusive resource use.

The main considerations for setting densities for rural residential areas are to choose densities which: (1) are supportable from an environmental standpoint; (2) will not interfere with nearby resource uses; and (3) are cost-effective to serve with a rural level of services.

Densities should be low enough to be supportable by a rural level of services, most particularly septic tank rather than sewer. State regulations impose some limitations on lot size for development served by septic tanks. Lots must be, at a minimum under ideal soil conditions, 12,500 square feet (WAC 246.272.100). In reality, these conditions are the exception rather than the rule. For example, in King County, where a well is used, a minimum lot size of five acres is required. King County established the five acre minimum to primarily protect the wells and the aquifer. (Hendrickson)

Florida communities allow a maximum density of one unit per ten acres in rural areas and consider densities between two units per acre and one unit per ten acres to be sprawl development. The Urban Growth Management Study: Case Studies Report prepared for Oregon's Department of Land Conservation and Development noted the need to establish a floor minimum lot size in rural areas and is recommending eliminating zoning under a five to ten acre per unit density for rural areas. A study of density-related public costs by the American Farmland



Trust found that a one unit per five acre development may be even more expensive to serve than developments at densities between one unit per acre and one unit per five acre densities in the Loudon County, Virginia area.

By clustering and carefully siting development, pockets of higher density development can be accommodated while leaving greater area in open space. Average densities in rural areas should be kept low, however, to assure that rural service provision remains cost-effective. Self-contained communities and master-planned resorts may be appropriate on a limited basis in rural areas provided they meet the criteria set forth in the GMA (Section 16 and 17, ReSHB 1025).

A final piece of advice from Florida is worth noting:

"The key to allowing development in a rural area is proper planning which will preserve the area's rural character. The issue is not density alone. As permitted densities increase, so should the guidelines and safeguards applied by local governments to ensure that rural development does not result in unaffordable, nonfunctional, and unattractive sprawling development patterns."

Although this guide is focused primarily on providing guidance for setting densities, density may not be the sole issue. Appendix D contains some useful guidelines from Massachusetts and Hawaii to preserve rural character, while allowing some level of rural residential development.

Establish Resource Area Densities Which Support the Continued Operation of Resource Uses

Resource areas should be reserved primarily for resource uses to assure their continued viability and to reduce pressure from competing residential uses.

Agriculture. Our country is losing productive agricultural lands to urban development. The National Agricultural Lands Study report, presented to President Carter in 1981, claimed that three million acres of agricultural land were being converted each year into housing developments, shopping centers, industrial complexes, highways, water reservoirs, and other types of urban development. This phenomenon is occurring at a time when domestic and export demands for agricultural goods are rapidly increasing. The same trend has become increasingly evident in Washington. Although the number of farms has actually increased, the number of acres in commercial farming has decreased (Nelson and Daniels, 1986).



As urbanization occurs, higher land costs create a temptation to "sell out" to urban development, which can command a higher dollar value for rural land at the urban fringe. In addition, urban development and densities near farmlands can impact agricultural operations in a variety of ways, which can threaten their continued viability. The Portland area Metro Service District found that agricultural and urban uses were frequently incompatible, because agricultural operations creating dust, noise, odor, smoke, and chemical spray draw complaints from adjacent urban areas. In return, adjacent urban development often brings vandalism, traffic interference, higher production costs due to smaller field size, higher urban taxes, service district charges, and higher insurance costs, all to the farmer's demise. Those problems have been sufficiently troublesome in Washington that farmers have succeeded in getting right-to-farm legislation adopted in this state. (See Appendix C for more explanation of right-to-farm laws.) As agriculture diminishes in the area in general, agricultural support services (feed stores, etc.) pull out, further hampering agricultural operations. ("Urban Growth Boundary Findings," 1979)

At the same time, some areas have been successful in maintaining productive farmlands close to urban areas. For example, five of Florida's ten most populous counties are also in the top ten counties in terms of market sales of agricultural products. For some types of agriculture, the proximity to an urban market can enhance the profitability of the operation.

Use of minimum lot size is perhaps the most common method used by local governments to prevent the conversion of agricultural land to urban use. The objective with this approach is to maintain parcels in large enough pieces to allow viable farm operation and to discourage purchase of farmlands for competing uses, such as residential development.

Communities in Washington and across the country have applied a wide range of densities to maintain rural uses and specifically, agricultural uses. The U.S. Census Bureau defines rural densities as 200 persons per square mile or just over one unit per ten acres. According to Mitch Rohse, the Oregon Department of Land Conservation and Development, communities in Oregon have typically applied minimum lot sizes ranging from 20 to 80 acres. Nelson (1986) notes that minimum lot sizes as high as 320 acres per unit were applied in the rangeland of Deschutes County, Oregon. Marin County, California uses a large-lot designation of a minimum of 60 acres (Holding, 1987). Boulder, Colorado applies a one unit per 35 acres restriction, but allows two units per acre if 75 percent of the land is open space (Beatley and Brower). The Florida Department of Community Affairs considers densities ranging from two to ten units per

acre to constitute urban sprawl and counsels that agricultural densities should not be more dense than one unit per 40 acres. The Minneapolis-St. Paul Metro area zones rural area at four units per 40 acre densities, but applies one unit per 40 acre densities for farms committed by covenant to continue agricultural uses in exchange for benefits. In this state, communities apply a variety of rural density standards, frequently falling within the two-acre to ten-acre minimum lot size and 35-40 acres minimum for agricultural zones where they have been distinguished from generic rural zones. Spokane County has differentiated rural land use categories to a greater degree than most, establishing several "semi-rural" categories with densities between two and ten acres per unit, a rural designation accommodating primarily large-lot residential use at a one unit per ten acre minimum and establishes an agricultural zone in which there will normally be only one or two houses per 640 acres (Spokane 1990 Comprehensive Plan).

"Viable farm size" refers to the threshold property size which will enable the farm operation to be an economic success. The viable farm size and necessary conditions for a successful operation vary depending on the type of agriculture.

Deschutes County, Oregon has concluded that a 320-acre minimum lot size is important for sustaining the cattle ranching activity. Hardin County, Kentucky concluded that 78 acres was the minimum viable parcel size needed to support the principally tobacco and grain-type agriculture prevalent in their locale. The American Farmland Trust advises that "for a cash crop operation in Michigan, the lot size should be not less than 40 acres."

In Washington, the Final Environmental Impact Statement for the King County Comprehensive Plan refers to data from their (former) Office of Agriculture that 35 acres is needed to support dairy farming and a minimum of 15 acres is needed for an economic horticultural operation. A recent Redmond study found that ten acres could support an intensive "specialty" farm operation, such as berry farms or organic vegetable farms (Jones and Stokes Associates).

Some forms of agriculture appear to be viable in more urban counties as well. Kurt Moulton from King County Cooperative Extension and Lyle Fitch from the King County Soil Conservation District convey the general sense that large-scale commercial agriculture is economically marginal now in urban counties such as King and Snohomish Counties. However, agriculture does appear to be viable as a part-time occupation or in the form of intensive or specialty farming. Dairy farms, nurseries or tree farms, berry farms, and specialty lettuce farms, and some types of livestock, such as sheep or exotics such as llamas, have also been



successful in this area. The intensive farming can be workable on acreage as small as ten to 20 acres. The dairy farm operation is more likely to require 40 or more acres.

The National Trust for Historic Preservation notes that unless the minimum lot size:

"is as large as the minimum size for a viable working farm—for example, 160 acres in McHenry County, Illinois—large-lot zoning can do more harm than good. Although the intent may be to protect land, large-lot residential zoning may actually waste land and may increase environmental problems rather than alleviate them." (Stokes with Watson)

Viable farm size is only one factor in the formula for determining appropriate agricultural densities. Equally important is the question of whether permitted densities are likely to attract forms of development which may edge out large-scale farming operations. A number of studies indicate that both hobby farms (which some refer to as "Martini" farms) and large-lot residential development with no pretense of farming (estate homes or what some have described as the "McMansion" problem) can threaten the larger-scale farm operation. Healy and Short, in their 1981 study of the rural land market, found that parcels of five to 40 acres sold well, particularly among people seeking homesites. They note that:

"It is certainly safe to say that the division of high-quality farmland into the two to ten acre building lots typically found in rural subdivisions precludes commercial agriculture of most currently practiced types. Nor do the ten to 40 acre "farmettes" and "ranchettes" that have been created in so many rural places promise much commercial crop or livestock production.

Parcellation, changing ownership patterns, and high land prices may impede our future ability to expand commodity production. Perhaps the most important obstacle is parcellation."

For more urban counties, both Lyle Fitch, King County Conservation District, and Kurt Moulton, King County Cooperative Extension, note that ten acre or less zoning tends to attract residential development. Kurt Moulton noted that at 20 acres, there is adequate land area to support an intensive farm operation and people "have to be serious" to purchase 20 acres.

Consider Applying More Flexible Agricultural Zoning Techniques. Rather than establishing a rigid single unit per specified acre standard, some communities have developed zoning approaches which give farmers more flexibility to accommodate homes for other family members or

worker accommodations. These approaches may be workable and have advantages for the farmer, where larger commercial tracts still exist. North Hopewell Township, York County, Pennsylvania limits the number of new single-family dwelling units to six in addition to the prime farmstead, regardless of the size of the tract. The units are located in a minor subdivision with a maximum lot size of 1.5 acres to avoid consuming excess high-quality agricultural land.

Peachbottom Township, in the same county, uses a sliding scale to implement a similar concept. They felt that allowing a set number was unfair to larger property owners. They established a system in which the number of single-family units permitted on a tract of land increases on a sliding scale with the size of the land. The table below shows the number of units permitted on various size tracts. (Kartez, 1984)

Excerpt from Peachbottom Township Zoning Ordinance (1971)

G. Conditional Uses

s.493 All applications for approval of a conditional use shall be referred to the Township Planning Commission for recommendation.

s.494 Single-family dwelling units in the agricultural zone shall be subject to the following limitations:

a. There shall be permitted on each tract of land the following number of single-family dwelling units:

<u>Size of Tract of Land</u>	<u>Number of Single-Family Dwelling Units Permitted</u>
0 - 7 acres	1
7 - 30 acres	2
30 - 80 acres	3
80 - 130 acres	4
130 - 180 acres	5
180 - 230 acres	6
230 - 280 acres	7
280 - 330 acres	8
330 - 380 acres	9
380 - 430 acres	10
430 - 480 acres	11
480 - 530 acres	12
530 - 580 acres	13
580 - 630 acres	14
630 - 680 acres	15
680 - 730 acres	16
730 - 780 acres	17
780 - 830 acres	18
830 acres and over	19

"Quarter/quarter zoning" is used in many Michigan and Minnesota communities. Under this system, each landowner is entitled to one lot per 40 acres of farmland. Once the landowner reaches the number to which he is entitled, it becomes a matter of record and no further development on the parcel is permitted. (American Farmland Trust, 1987)

Two-tier density programs can also increase zoning flexibility. Some Florida communities set an underlying maximum density for an area but allow that density to be exceeded if certain guidelines are met. Criteria for the lower densities should include clustering and open space ratios, provision to address development impacts, and so forth. (Florida Department of Community Affairs)

Finally, the experience from a variety of areas suggests that large-lot zoning alone is unlikely to protect agricultural lands. According to Florida's Department of Community Affairs, "the most important issue for maintaining the rural character of an area is not the densities that are allowed, but the pattern of development that is permitted. This is not to say that densities are not relevant, but the real issue is how densities will be used." It will need to be combined with other measures which support agricultural operations and limit interference from competing uses. The purpose of this guidebook is to examine the application of densities rather than to describe farmland protection measures in detail. However, Appendix C offers some excellent suggestions from the American Farmland Trust, the National Trust for Historic Preservation and James and Stokes Associates, Inc., for complementary measures to support agriculture. Among the measures communities may wish to consider are exclusive agricultural zones, taxation policies, right-to-farm legislation, and purchase or transfer of development rights.



Forestry. The nature of forest practices, involving use of particularly heavy and noisy equipment, may make it particularly difficult for forest operations and residential development to coexist. Forestry operations may be even more severely impacted by the fragmentation of property than are agricultural operations. Even limited residential development nearby can severely constrain forest operations.

State statutes require a contiguous ownership of 20 acres to qualify for forest land valuation under 84.33.100 RCW. A five-acre minimum is required for eligibility under the Open Space Taxation Act (84.34.020(3) RCW). Although these statutes may provide some incentives for forest operations, the acreage requirements bear no relation to the actual acreage needs for a viable forestry operation.

A study of forest land in northern Michigan found that marketing and logging costs can be affected by the size of timber tracts. The study noted that the average size of contiguous forest tracts had decreased in size from 182 acres in 1946 to 156 acres in 1962. The study concluded that a 200-acre parcel would be more economical to harvest than five 40-acre blocks because: (1) fewer owners would need to be contacted and informed; (2) access roads can be laid out more efficiently; and (3) the cost of harvesting and marketing would increase with land fragmentation. (Schallau, 1965)

A timber conversion study prepared by the California Department of Forestry goes further noting that "At some point, a piece of property gets so small that timber operations become virtually impossible. Generally, a 160-acre parcel is large enough that property size would place no constraint on timber production, barring access problems." The study noted that California Department of Forestry foresters in El Dorado County felt that splitting a 160-acre parcel into 40-acre parcels would constrain timber production. Most study respondents felt that 40 acres would provide adequate space for a viable operation, under ideal conditions where there were no problems with adjacent owners or access difficulties. (INTASA, Inc., 1981)

However, as parcels become smaller, they become more attractive for residential development. The Final Impact Statement for the King County Comprehensive Plan, (1985), stated that a minimum lot size of 80 acres was an important threshold for efficient forest practices. King County's Land Development Information System data indicated that there was a significant increase in conversion rates below the 80-acre parcel size.

Resource and Rural Density Suggestions Summarized

To summarize these points about setting appropriate rural densities:

- ♦ **Agriculture.** It is important to look at the particular types of soil conditions, current land use and ownership patterns, and types of agriculture which have historically been conducted in your community to establish appropriate densities. Talk with your local soil conservation district, local agricultural stabilization and conservation service committee, and cooperative agricultural extension agents for their advice about viable farm size for the particular types of agriculture practiced, or potentially possible to practice, in your area. You can match the densities you establish to the needs of the specific form of agriculture you are seeking to support. If you seriously wish to maintain intensive, specialty farming, a 20-acre minimum may be preferable to minimize competition from residential development, although such farming may be viable on ten or somewhat fewer acre parcels.



If you still have in place the conditions which make large-scale commercial farming viable, you might not want to settle for large-lot residential zoning or so called "Martini farms." The experience in other communities suggests that minimum lot sizes as low as 40 acres may risk the eventual decline of commercial farm operations. Even dairy farming, which appears to be viable on parcels as small as 40 acres, may experience problems because of typical manure disposal practices. Establish other areas with lower quality soils and potential, where primarily rural residential uses can develop without harm to viable commercial operations. A separate exclusive agricultural use zone at lower densities is preferable for high-quality commercial agricultural areas. However, agricultural zoning alone will not maintain continued agricultural operations. Zoning should be supplemented with supportive measures, such as right-to-farm provisions and a supportive tax structure. Again, refer to Appendix C for complementary measures to support agriculture in addition to density controls.

- ♦ **Forestry.** In his article on forest land preservation, Robert Liberty recommends zoning controls as "the most effective means to retain forest lands." The more limited studies available on forest land conversion and preservation indicate that forestry on contiguous parcels smaller than 40 acres may be difficult unless conditions are ideal. A larger parcel size of 80-160 acres is likely desirable to make the logging operation more economical and to reduce the likelihood of conversion to residential or other uses. Specifically placing prime forest lands in a forest resource zone, where forestry has priority, can further protect the forestry resource. Variations on the measures to support agriculture found in Appendix C may also be applicable to forestry lands.
- ♦ **Rural Residential Development.** In these areas, limiting the overall amount of area designated for these uses and planning how and where these developments occur to improve compatibility may be almost as important as actual density levels. If the development is not clustered, then densities low enough to avoid the problems associated with sprawl (less than one unit per ten acres) are recommended. (Clustering techniques and techniques to preserve rural character are in Appendix D.) In any event, such development should be directed into separate zone districts different from true commercial forestry or agricultural operations. Creating a separate district for rural residential uses can help resolve conflicts between rural residential and resource uses. Residential uses can be given priority in urban and rural residential areas, but be on notice in resource areas that logging or agricultural uses will be encouraged. A careful study of existing development patterns, quality of soil, and other conditions should be made before locating or recognizing existing rural residential areas.

Special Density Considerations Should Be Given for Future Urban Areas

An earlier section described the problems associated with the tendency for higher densities to occur in rural areas at the urban fringe. The "Martini farm/McMansion" type development can establish a pattern which: (1) makes it difficult for new or expanded farming operations to occur, and (2) makes it difficult to expand the UGA, if needed, at a later point in time.

Equally problematic on the urban side of the line is the treatment of areas not yet ripe for development, but designated for future urban development. If "sprawl" densities in between urban and rural densities are permitted, a development pattern can occur which will preclude future development at more efficient densities. The recent *Urban Growth Management Study: Case Studies Report*, prepared for Oregon's Department of Land Conservation and Development, concluded that low densities in the one to five-acre range presented major problems for future annexation, extension of urban services and, in general, conversion to more efficient urban patterns. The report notes that the less development allowed in future urban areas where urban services are absent, the better. It further notes that "interim land divisions mean the land must be consolidated in the future for larger scale, more efficient development. Homes that are sited on five-acre lots exacerbate future subdivision design problems." The report recommends that Oregon communities establish a large minimum lot size of at least ten to 20 acres for areas without urban services (ECO Northwest). Florida communities have experienced similar problems where sprawl patterns (which they define as two units per acre to one unit per ten acres) are established.

Some communities have applied interim zoning which allows an average density of one unit per five acres with development clustered on a portion of the property. The remainder of the property is reserved for future urban development. This approach allows property owners some flexibility. However, since the clustered development typically occurs on septic tanks at lower than desired urban densities, pockets of inefficient development patterns form, which are not likely to redevelop to higher densities. To the extent possible, development may be best kept at rural levels until full urban services are available.

Conclusion

The UGA is one of the major tools provided by the GMA for shaping where urban development should be encouraged and where the limits to that development should end. Because the UGA designations establish the basic type, character, and intensity of development which can occur on a given property, the decision to locate the UGAs should be based on a consistent set of criteria. When these criteria are derived from your community's growth management goals, they provide a yardstick to measure whether inclusion of a given area in the UGA will help you move toward achievement of your goals. This manual suggests a number of criteria you may wish to use to help you meet the intent of Washington's GMA.

Densities within urban and rural areas should also be assigned in a way which promotes your growth management objectives for urban and rural areas. Urban and rural areas serve distinctly different purposes. UGAs are areas where growth and higher densities should be encouraged and supported with urban services. By directing growth into urban areas, resource areas can be conserved and rural areas can be maintained primarily for resource and other low-intensity uses compatible with rural uses.

However, setting appropriate densities is only part of the formula for achieving urban, rural, and resource area goals. A complementary package of measures will be needed to successfully manage your community's growth. Careful attention to how new development fits with the existing character of urban, rural, and resource areas will be particularly important for the long-range acceptance and success of your growth management program.

This guidebook specifically addresses the issues of setting criteria for establishing urban, rural, and resource areas and densities appropriate for those areas. The three guidebooks by the Department of Community Development listed below provide additional guidance for the step-by-step process of designating UGAs and for determining the size of your UGA:

- ♦ Issues in Designating Urban Growth Areas, Part 1: Providing Adequate Urban Land Supply
- ♦ Shaping Your Future: A Guide to Designating an Urban Growth Area
- ♦ The Comprehensive Plan's Foundation: A Land Use Inventory Guide



Glossary

Comprehensive Plan: A legal document adopted by local officials establishing policies that will guide the future physical development of the community. It will be used by local officials, planning commissions, private firms and individuals when making decisions about land use development or changes, capital improvements programming, and the enactment of development regulations and related growth management legislation. Zoning and other development regulations must be consistent with the comprehensive plan. Periodic update and revision is required to assure that the plan adequately provides for growth, and reflects community desire and changed conditions.

Geographic Information Systems: Any system, manual or automated, capable of organizing, storing, analyzing, and retrieving geographically related (mapped) information in a useful matter that supports sound decision making regarding the management of a communities resources. Increasingly, the term is applied to computerized systems which combine computerized mapping with automated land use data files.

Infill Development: Development of vacant, skipped-over parcels of land in otherwise built-up areas. Local governments are showing increasing interest in infill development as a way of containing energy costs and limiting costs of extending infrastructure into newly developing areas. Infill development also provides an attractive alternative to new development by reducing loss of critical and resource lands to new development and by focusing on strengthening older neighborhoods.

Infrastructure: Streets, water and sewer lines, and other public facilities basic and necessary to the functioning of an urban area.

Land Use Inventory: A study of how land is currently being used within the community. The study catalogs the types, extent, distribution, and intensity of the uses or activities found on parcels of land or in spaces within a building. For example, the land may be used for residential, or commercial activity. Office, retail, and residential uses may all be found within different areas of the same building. Knowing what activities currently occur in different locations in a community and the relations between these different uses or activities is essential information for planning future land use.

Leap Frog Development: Urban development sited away from the existing urban area.

Level of Service (LOS) A measure of quality of service. For roads, a declining letter scale from "A" to "F" is used. For example, the LOS of highways is calculated by the methodology contained in the 1985 Highway Capacity Manual Special Report 209, provided by the Transportation Research Board. Level "A" is a highway with traffic flowing freely, and level "F" standards indicates jammed conditions or extensive delay. For parks, the standard is based on the number of acres of park land the community wishes to maintain per person or per 1,000 population. Park standards are published by the National Parks and Recreation Association and can be used as a reference by local governments.

Local Improvement District (LID): A defined geographical area or special district set up by ordinance to finance streets, sewers, and other public improvements that directly benefit properties in the district. The improvements are paid for by benefitted property owners over a period of time, usually 10 to 20 years. Procedures for establishing an LID in Washington are addressed in 35.43 through 35.56 RCW.

Long-Term Commercial Significance: According to Section 3 of the GMA (36.70.030 RCW), long-term commercial significance includes the growing capacity, productivity, and soil composition of the land for long-term commercial production in consideration with the lands proximity to population areas and the possibility of more intense use of land.

Minimum Guidelines: The guidelines adopted under WAC 365.190 by the Department of Community Development to guide and assist in the classification of agricultural lands, forest lands, mineral lands, and critical areas.

Parcel: A continuous quantity of land, in single ownership or under single control, and usually considered a unit for the purposes of development.

Public Facilities: According to Section 3 of the GMA (36.70A.030 RCW), public facilities include transportation-related facilities, water, storm and sanitary sewer systems, parks and recreation facilities, and schools.

Public Services: According to Section 3 of the GMA, (36.70A.030 RCW) public services include fire protection and suppression, law enforcement, public health, education, recreation, environmental protection, and other governmental services.

Right-of-Way: A recorded right to use or travel over a specified property. The property can be an area or strip of land, public or private. Most commonly, it refers to land on which a street, sidewalk, or railroad

is located. It can also be occupied by utilities, transmission lines, oil or gas pipelines, drainageways or similar facilities although pathways for these features are more commonly referred to as easements.

Strip Development: High amounts of intensive development in a linear pattern located on both sides of an arterial.

Urban Growth Areas (UGAs): Areas which counties designate, in consultation with cities, where urban growth will be encouraged and supported with urban levels of services. The urban growth areas are to include areas and densities sufficient to permit the urban growth that is projected to occur in the county for the succeeding 20-year period. Urban growth refers to growth that makes intensive use of land for the location of buildings, structures, and impermeable surfaces to such a degree as to be incompatible with the primary use of such land for the protection of food, other agricultural products or fiber, or the extraction of mineral resources.

Urban Growth Boundaries: The boundary or line marking the limit between the UGAs and other areas such as rural and resource areas where urban growth is not encouraged, as designated by the county in consultation with cities, under the requirements of the GMA.

Urban Services: Services, utilities, and facilities historically and typically provided by cities, which include storm and sanitary sewer systems, domestic water systems, street cleaning services, fire and police protection services, public transit services, street improvements such as sidewalks, curb and gutter and other public utilities associated with urban areas and normally not associated with nonurban areas. (The difference between the urban level of service within the UGA and the level of services outside the urban growth boundary will be established by local comprehensive plan policies. Typically, densities of two to four units per acre or higher will require urban levels of facilities and services.)

Urban Sprawl: Scattered, poorly planned urban development that occurs particularly in urban fringe and rural areas and frequently invades land important for environmental and natural resource protection. Urban sprawl typically manifests itself in one or more of the following patterns: (1) leap frog development (when new development is sites away from an existing urban area, bypassing vacant parcels located in or closer to the urban area that are suitable for development; (2) strip development (when large amounts of commercial, retail, and often multifamily residential development are located in a linear pattern along both sides of a major arterial and, typically, accessing directly onto the arterial; and (3) large expanses of low-density, single-family dwelling development.

Vested: Property where landowners have the right to proceed with development.

APPENDIX A

Single-Family Conversions in Residential Districts from the City of Tumwater Zoning Code, Chapter 18.42, 1988.

18.04.545 Shopping center.

"Shopping center" means a group of retail and service establishments clustered on a contiguous site, designed and built as a unit or organized as a unified and coordinated shopping area. (Prior code § 18.04.555)

18.04.550 Shoreline.

"Shoreline" means a line determined by the ordinary high-water mark, as defined in the Shoreline Management Act of 1971 as follows:

Ordinary high water mark on all lakes, streams, and tidal water is that mark that will be found by examining the beds and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation, as that condition exists on the effective date of this chapter or as it may naturally change thereafter; provided, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining saltwater shall be the line of mean higher high tide and the ordinary high water mark adjoining freshwater shall be the line of mean high water.

(Or, as shown by markings of water surface contaminants on rocks, bulkheads, pilings, or other relatively permanent structure or natural feature.) (Prior code § 18.04.560)

18.04.555 Sign.

"Sign" means any visual communication device, structure or fixture that is intended to aid an establishment in identification and to advertise and/or promote a business, service, activity or interest. "Sign" shall not be considered to be a building or structural design, but shall be restricted solely to graphics, symbols or written copy that is meant to be used in the way set forth in this section. (Prior code § 18.04.565)

18.04.560 Single-family conversion.

"Single-family conversion" means a self-contained, independent dwelling unit, incorporated within an existing structure that was originally designed for a single-family dwelling unit or accessory structure and will not substantially alter the exterior appearance. (Prior code § 18.04.570)

18.04.565 Solar energy system.

A. "Solar energy system" means any device or combination of devices or elements which rely upon direct sunlight as an energy source, including, but not limited to, any substance or device which collects sunlight for use in:

1. The heating or cooling of a structure or building;
2. The heating or pumping of water;
3. Industrial, commercial, or agricultural processes; or
4. The generation of electricity.

B. A solar energy system may be used for purposes in addition to the collection of solar energy. These uses include, but are not limited to, serving as a structural member or part of a roof of a building or

Chapter 18.42

GENERAL LAND USE
REGULATIONS

Sections:

- 18.42.010 Single-family conversions in residential districts.
- 18.42.020 Height regulations—Exceptions.
- 18.42.030 Home occupations.

18.42.010 Single-family conversions in residential districts.

It is the specific purpose and intent of allowing single-family conversions within all residential districts to provide the opportunity and encouragement for the development of small rental housing units designed, in particular, to meet the special housing needs of single persons and couples of low and moderate incomes, both young and old, and of relatives of families presently living in Tumwater. Furthermore, it is the purpose and intent of this provision to allow the more efficient use of Tumwater's existing stock of dwellings and accessory buildings to provide economic support for present resident families of limited income, and to protect and preserve property values. To help achieve these goals and to promote the other objectives of this title, the following specific standards are set forth for such accessory apartment uses:

A. There shall be no more than one single-family conversion per lot.

B. The owner of the subject property upon which the single-family conversion is located shall occupy at least one of the dwelling units on the premises.

C. The house to which an accessory unit is to be added must have been owner-occupied for the twelve calendar months preceding the date of the application.

D. Single-family conversions may only be installed within existing structures, whether primary or accessory structures, subject to the following conditions:

1. The principal and attached accessory structures have at least two thousand square feet of gross floor area;

2. Where all structures are at least two years old;

3. Where no additional floor area has been added in the preceding two years; and

4. No additions to the existing floor area are necessary as a part of the conversion.

E. The accessory apartment conversion will require an additional parking space to total three off-street parking stalls for the combined two-family structure.

F. Only one entrance to the house shall be visible from the front yard and there shall be no external evidence of occupancy by more than one family.

G. To ensure that the accessory unit is clearly secondary to the primary dwelling unit, the floor area for the apartment shall in no case exceed twenty-five percent of the area of the principal and attached accessory structures in which it is located and shall contain no more than two bedrooms.

H. All conversions shall conform to the Uniform Building Code and all other applicable codes and ordinances. (Prior code § 18.40.010)

Appendix B: Guidelines to Assure High Density Development Enhances Community Character

James W. Wentling and Lloyd W. Bookout, ed. Density by Design, Urban Land Institute (ULI), Washington, D.C., 1988 (Excerpts reprinted with permission of ULI. Duplication by photocopy or any other means of these pages is prohibited without further permission of ULI, 625 Indiana Ave. N.W., Washington, D.C., 20004-2930. Phone number (202) 624-7040. Fax number (202) 624-7140).

Residential Design Guidelines. San Francisco Planning Department, 1989 (Excerpts reprinted with permission of the City of San Francisco).

DENSITY

BY DESIGN

edited by
James W. Wentling, AIA
and
Lloyd W. Bookout

ULI—the Urban Land Institute
in cooperation with the
Housing Committee,
American Institute of Architects

WIDE-LOT SINGLES

John Rane



BARCELONA IN WESTPARK IRVINE, CALIFORNIA

Arthur C. Danielian

The wide-and-shallow-lot configuration is a recent variation of the zero-lot-line concept. Wide-lot homes actually are modern versions—set on smaller lots—of the single-family housing that was developed throughout the United States shortly after World War II.

The "wide-lot single" provides a viable solution to the problem of detached housing that is affordable, especially for young families in areas where high land costs prevail. These homes offer the conventional single-family style desired by so

many Americans, with higher densities made more acceptable through innovative planning that provides more usable yard space and increased privacy on a smaller lot.

The wide-lot concept calls for frontages ranging from 60 to 70 feet, with depths from 55 to 80 feet. Density yields generally range from six to eight units per acre. In contrast to the more frequently used zero-lot-line homes on narrow, deep lots, the wide-lot concept provides a more impressive and attractive appearance from the street at approximately the same density. This was a primary objective in developing the Barcelona project in Westpark, one of the first wide-lot projects in the United States.

Arthur C. Danielian, FAIA, is president of Danielian Associates, an architectural and planning firm in Irvine, California, that has been active in a wide range of projects with major emphasis on residential designs and land planning services. The firm has received numerous design awards. Danielian is past chairman of the National AIA Housing Committee and serves on a Residential Development Council of the Urban Land Institute.

■ The wider lots mean that more of the house is exposed to the street, making it appear larger than it really is while reducing the prominence of the garage. The garage is camouflaged further by recessing it into the structure of the house or by placing a bedroom above it.

DEVELOPMENT STRATEGY

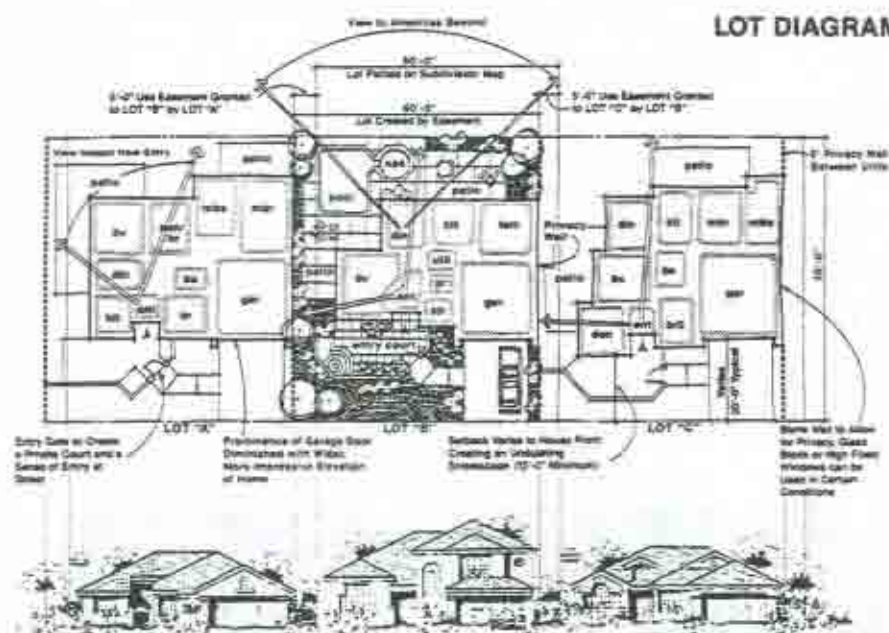
Barcelona in Westpark is an integral component of the master-planned community (or "village") of Westpark, located in the city of Irvine. Westpark includes 833 acres,



John Rane



SITE PLAN



LOT DIAGRAM

■ High land costs in Irvine's newest village of Westpark, combined with a strong market demand for detached houses, led to this wide-lot concept that attained 7.8 units per acre on a 19.3-acre site. Although lots generally are 57 feet wide by 55 feet deep and total just over 3,100 square feet, the street view suggests that both the house and lot are larger. The wider lot makes the garage less prominent than it would be with the typical 45-foot-wide zero-lot-line house, and it allows for a stronger, more traditional street elevation. The trade-off is a shallow back yard (only 30 feet between some back-to-back units) and slightly increased infrastructure costs that added about \$1,500 to the cost of each house in the Barcelona project.

with more than 4,300 residential units in approximately 12 product types. When completed in 1992, the project is anticipated to have 12,000 residents.

With raw land costs approaching \$500,000 per acre, density yield became an important factor in planning and determining the product for Westpark. The wide-lot concept

at Barcelona allowed increased densities with lots that were substantially wider (57 feet, as opposed to 40 to 50 feet) than those of competing detached housing programs in Westpark. The resulting increase in aesthetic appeal significantly boosted the marketing advantages for Barcelona's developer, the Bren Company.

A comprehensive community design guideline provided by the Irvine Company (Westpark's developer) also affected development plans. It established the contemporary Mediterranean motif, as well as the overall landscape and signage themes.



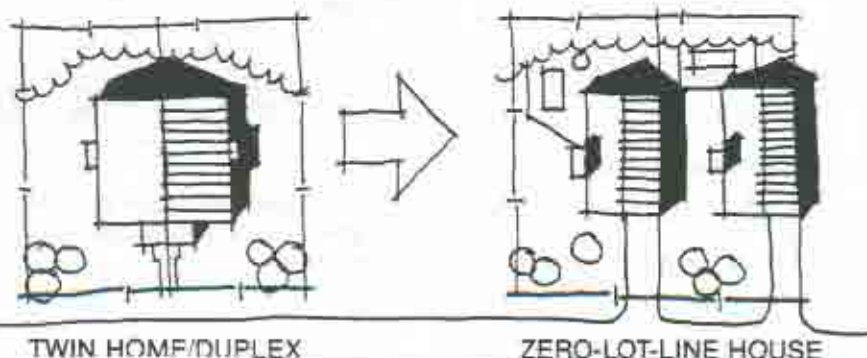
"... connecting two homes both economized on the cost of construction and increased the neighborhood density."

From Duplexes to...

Twin houses, or duplexes, generally were mirror images of each other with a common structural wall. Connecting two homes both economized on the cost of construction and increased the neighborhood density. Duplexes still can be found in various forms and sizes, from rural farmhouses to fashionable streetcar subdivisions. Most often they were used as a type of affordable housing.

...ZERO-LOT-LINES

The twin home with its common party wall may well have inspired today's zero-lot-line housing. For the cost of one additional blank wall, these units assume the status of detached housing, which capitalizes on a private side yard orientation.

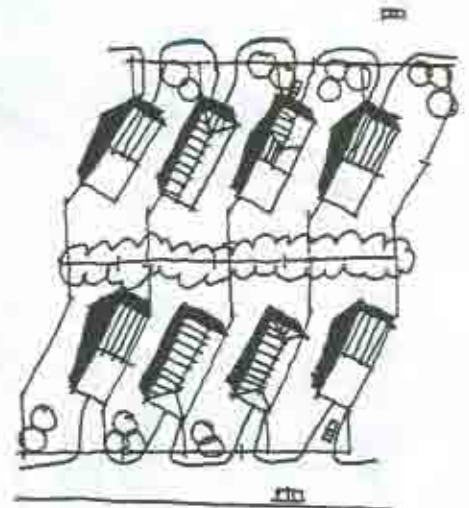


At comparable densities, the zero-lot-line house is a popular alternative to twin homes when a strong demand for detached houses exists, along with high land costs.

...ANGLED Z-LOTS

With the increasing popularity of narrow zero-lot homes, the angled Z-lot concept evolved to lessen the impact of closely spaced homes on the street. Of particular concern was the eyesore produced by two-car garages on 50-foot-wide lots dominating the street scene. The Z-lot concept rotates the home 45 degrees from its traditional perpendicular relationship to the street and jogs the lot lines to suggest a Z configuration.

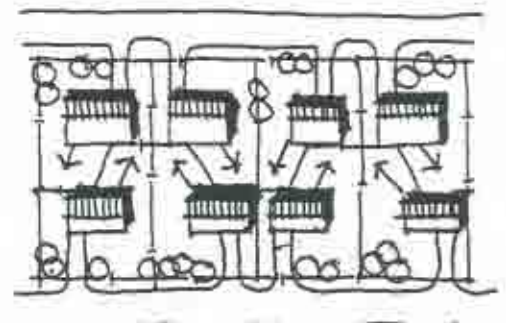
The Z-lot is being used to achieve densities of seven to 10 units per acre, similar to standard zero-lot-line homes. The primary design principle behind rotating the house is that the garage can be alternated for visual appeal and variety. Other benefits can include a reduction in the length of windowless walls, an increased perception of rear yard width, and an extended site distance line (through the house and into the rear yard) upon entering the front door.



■ The Z-lot variation of the zero-lot-line concept is intended to reduce the negative visual effect of garage doors, thus enhancing the street appeal.

...ZIPPER LOTS

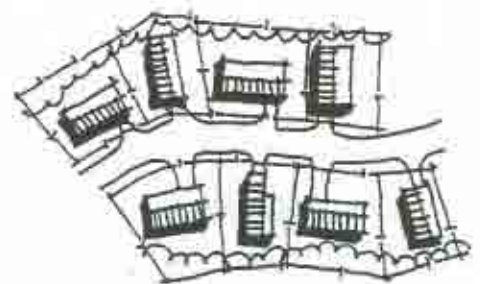
Another recent variation of the zero-lot-line home is the zipper lot. In this lotting approach, the rear lot line jogs back and forth to vary the depth of the rear yard and to concentrate usable open space on the side of the lot. The other side of the lot is shallow and is located against the blank wall (usually a garage wall) of an adjacent house. With lot widths around 60 feet on the street frontage, zipper lots can make the houses look larger than they actually are, and can minimize the visual impact of the garage on the streetscape. But because the lot pinches in at the rear and is fairly shallow, lot sizes can be kept to 3,000 square feet. Densities approaching 10 units per acre are possible.



■ Zipper-lot houses are placed on wider lots. Typically, only garages are located on lot lines.

...ALTERNATE-WIDTH LOTS

With alternate-width lots, narrow and wide lots are combined along a curvilinear street to offer a varied streetscape. An almost countless number of combinations of unit plans and lot shapes and sizes can be created. The assortment of lot sizes also permits houses to be turned on the lots and thus can further vary the streetscape. As with most



■ The alternate-width lot allows variety in the streetscape and in unit plans.

other small-lot, single-family detached programs, alternate-width lots depend on site plans being highly integrated with unit floor plans.

...MANOR HOMES

Another descendant of the side-by-side twin or duplex currently gaining favor may be called the "disguised twin," or manor home, which purposely assumes characteristics to negate a mirror image and to appear instead as a larger single-family home. To accomplish this, several techniques are being pursued, including stacking units vertically, horizontally, back-to-back, and side-by-side. One primary goal is to allow for the popular single-level floor plan.

Manor homes typically are designed with two to four units per building and afford densities of around eight units per acre. A unit generally contains 800 to 1,600 square feet. Special care is needed to resolve the entry elevation, garage elements, and exterior deck/patio orientation.

Manor home garages may be separated or pulled apart to avoid a wall of doors. If double garages are used, one pair can be rotated 90 degrees toward the other to form an entrance court. Direct access from the garage to the entry foyer is appropriate from a marketing standpoint. Front door entrances can also be separated and placed at alternate front/side elevations for privacy and individuality. The curb view, however, should present a grand unified appearance of single-family residences.

With interior spaces, the upper/lower unit differential needs to be addressed. Appropriate for certain markets may be a nine- or 10-foot ceiling at the lower level with volume ceilings or lofts on the second level. Stepping the building envelope back vertically may also open up some lower-level rooms, allowing them to have volume space or skylights. Properly designed, both upper and lower units will appeal to different markets and help to balance demand.

■ While the typical twin home featured side-by-side entries, front doors are separated in contemporary manor homes to individualize units.





"... within the efficient site layout allowed by a grid street pattern, densities of 30 to 40 units per acre were commonplace."

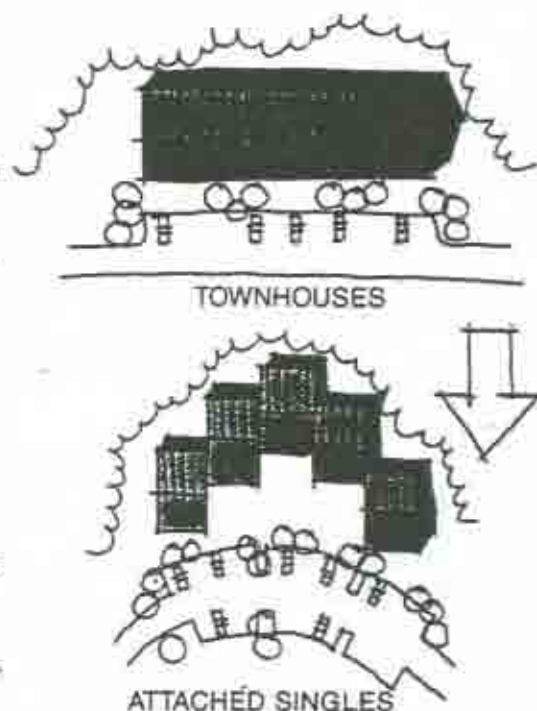
From Townhouses to...

For centuries the townhouse has provided affordable housing for urban dwellers. Within the efficient site layout allowed by a grid street pattern, densities of 30 to 40 units per acre were commonplace. To reestablish the townhouse concept in a nongrid subdivision, however, the building form and site plan concept must be analyzed anew.

...ATTACHED SINGLES

The basically linear configuration of urban townhouses can be broken into "attached singles" for suburban sites. The attached singles concept individualizes units through a variety of techniques to establish an image of detached housing. These principles work best on two-, three-, and four-unit buildings, but may also be applied to six- and eight-unit buildings.

Attached singles are generally sited at a density of seven to 10 units per acre, with units ranging in size from 900 to 1,800 square feet.

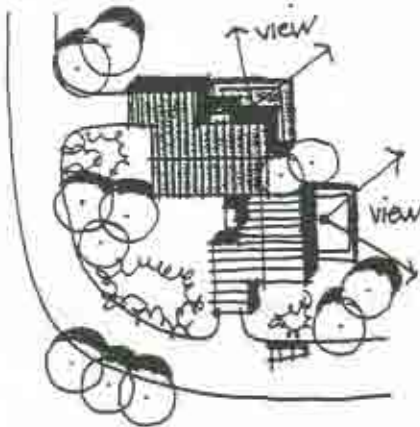


Attached singles assume a less linear configuration than traditional townhouses while achieving a suburban density of 10 units per acre.



■ From the street elevation, attached singles strive for a single-family detached appearance.

There is an obvious trade-off between unit differentiation and density, whereby closely spaced linear buildings and parking can achieve densities of around 20 units per acre. Attached singles are especially suited to difficult sites where clustering and grade changes are often required.

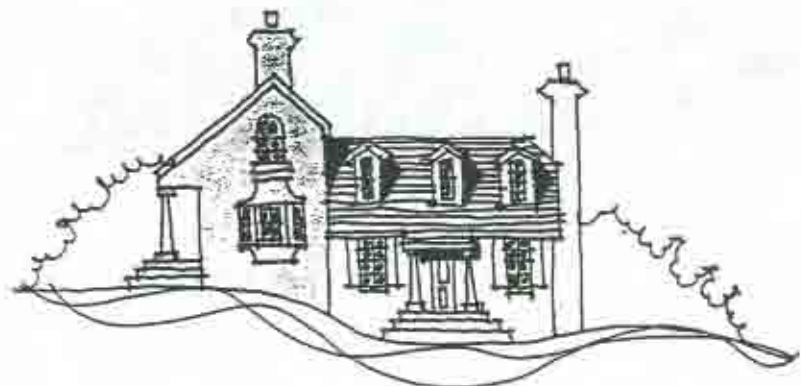


■ Separating the entrance of one house from the entrance to the adjacent house creates the image of a detached house.

In terms of site planning objectives, common wall length can be minimized by sliding units back or pushing them forward on the site. This works particularly well in three-plex and four-plex buildings, where a landscaped courtyard can result, becoming a central focus. An additional goal is to increase the overall linear footage of exterior walls for windows, affording more views and natural light for interior rooms.

Other site plan techniques may allow units to turn a corner if the street layout permits, with entries and orientations shifted 90 degrees. This technique successfully presents a separate unit facade from each front elevation.

Juxtaposing one-story with two-story units will vary rooflines dramatically and further emphasize individual units. Varying floor elevations at the party wall between units will also help to define the units while accommodating natural differences in the topography.



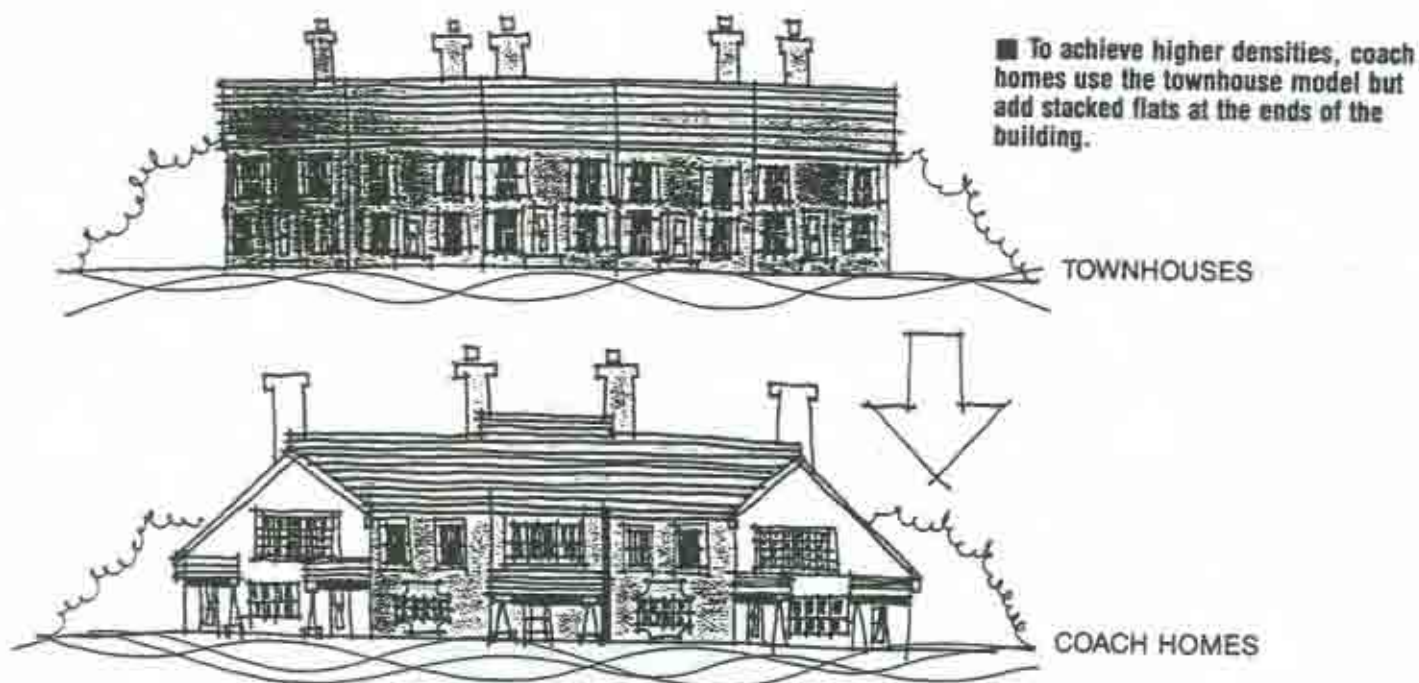
■ Grade changes and roofline variety are techniques used to promote unit identity.

Garages, if provided, can be grouped so that the party wall is moved forward, giving more privacy to the front entrance area. This also helps minimize pavement area off the street and concentrates parking areas.

In the internal design of attached singles, it is particularly important to orient features that face the outdoors, such as windows and decks, so that privacy is safeguarded. The construction cost of units will probably fall somewhere below that of detached singles but above that of townhomes, due to the individual articulation of each unit.

...COACH HOMES

A second popular descendant of the rowhouse is the coach home, which combines interior townhouse units with stacked flats at the ends of the building. This building hybrid allows density to increase while maximizing the open space exposure to four units at the ends of the building instead of the standard two units.

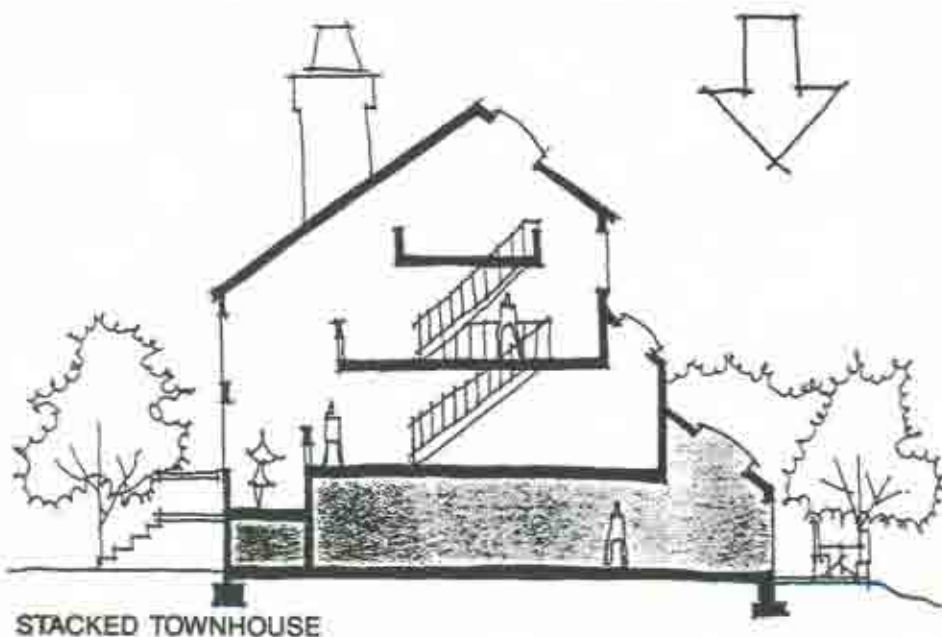
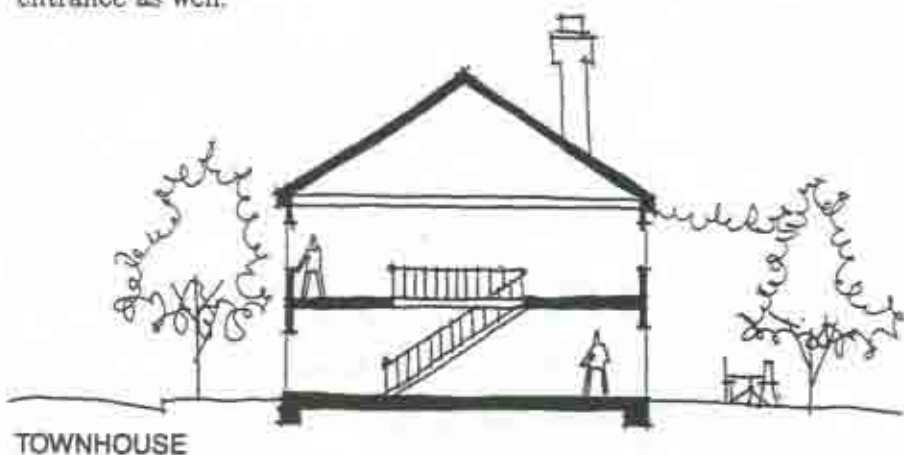


...STACKED TOWNHOUSES

The popularity of living on one level also has advanced a hybrid style of townhome that combines the familiar two-level townhouse stacked over a single-level flat. With appropriate topography, this plan may be extended to include two levels down and two levels up; all units would share a common entry level.

A prime concern of the stacked townhouse is vertical circulation. The use of several techniques can achieve a graceful entrance to the upper level. A private interior staircase from a grade-level entry porch to the second-level unit is favored. Other plans for the second-level unit include a partially elevated front door with 50 percent of the rise from an exterior landscaped design and the balance internalized. In both cases, the lower-level unit needs a graceful, individualized entrance as well.

■ Density can be increased by stacking a conventional townhouse over a single-level flat.

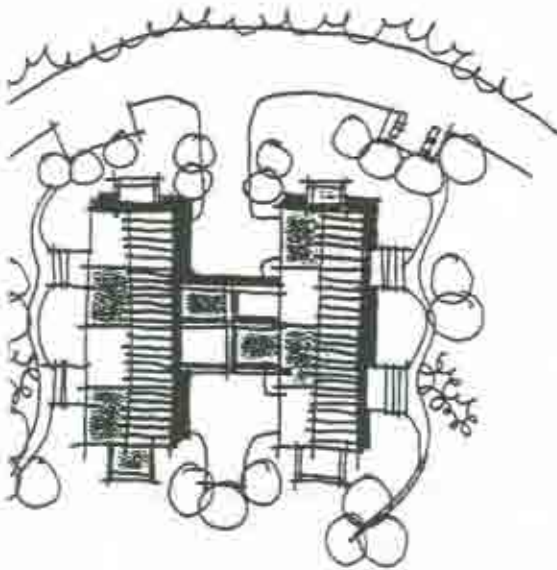


...TOWNHOUSE MEWS

In both urban and suburban settings, linear townhouses can be organized in pairs to constitute new building types for increased density. Townhouses may be sited front-to-front or back-to-back to concentrate entrances along an open space.

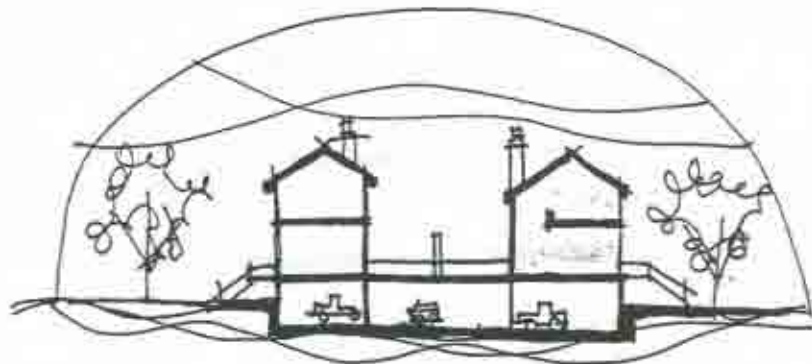
The back-to-back grouping of open space is a variation of the urban prototype. The essence of urban townhomes is found in tight rear yards separated by screens for privacy. The concentration of front-to-front entryways may be more suitable to tight infill sites, where rear building areas are needed for automobile access and garage placements.

The townhouse mews concept has been successfully applied in both urban and suburban settings. Because relatively high densities can be achieved, the product works well on small urban infill parcels. It also works well on larger suburban parcels, where higher densities and attached garages are concurrent objectives.



TYPICAL SITE PLAN

■ The townhouse mews is created by placing two rows of townhouses front-to-front, or, in this example, back-to-back, with a common driveway located in between. Deck areas are located behind the units with some extending over the driveway.



TYPICAL SECTION

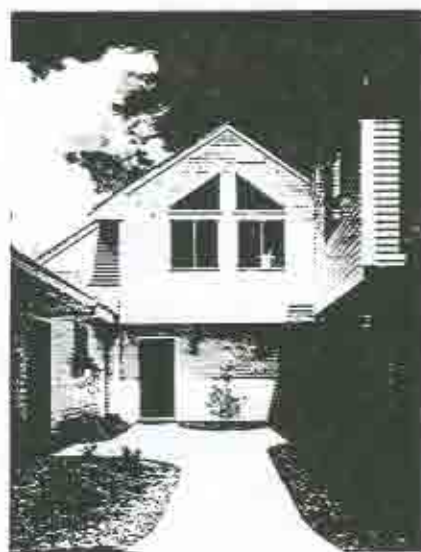
WHITMAN POND WEYMOUTH, MASSACHUSETTS

Paul J. Carroll

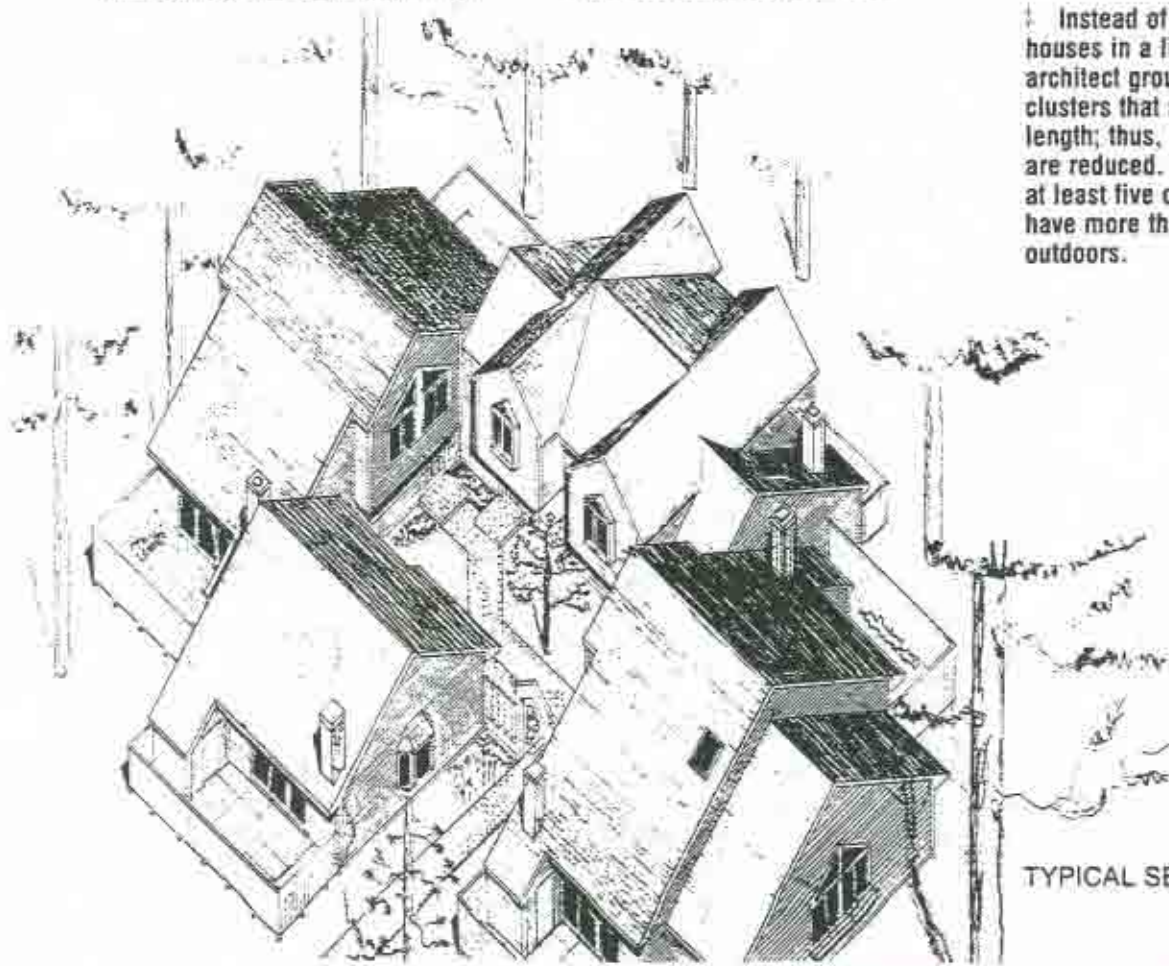
In a market with a surplus of larger and older attached housing, Whitman Pond Village effectively demonstrates how appropriate design and planning can mitigate the disadvantages traditionally associated with higher-density pro-

grams. A townhouse community of 11 seven-unit clusters on six acres, Whitman Pond Village employs open interior planning to create an illusion of space, making each unit seem larger than its 680 to 800 square feet. To further diminish the impression of density and to promote socializing among neighbors, each cluster shares an entrance courtyard. And although the units are small in comparison to other attached housing in the area, high-quality construction and materials give them the substantial character that encouraged many renters to become first-time homeowners.

Paul J. Carroll, AIA, is head of Paul J. Carroll Associates based in Boston, Massachusetts. His design practice includes commercial and office buildings, shopping centers, health care facilities, and large-scale residential projects. Carroll is a member of the National AIA Housing and Codes Committees.

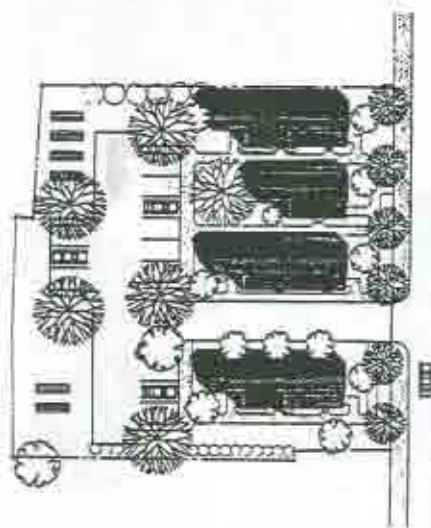


Instead of plotting these townhouses in a linear pattern, the architect grouped them into compact clusters that measure only 90 feet in length; thus, road and utility costs are reduced. The clusters also permit at least five of the seven units to have more than two exposures to the outdoors.

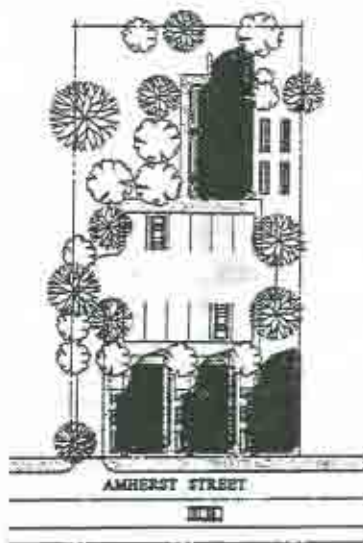


TYPICAL SEVEN-UNIT CLUSTER

TYPICAL SITE PLANS



ST. PHILIP STREET SITE



AMHERST STREET SITE



MARION STREET SITE

be unlikely candidates for private redevelopment; they had to have all utilities readily available; they had to be for sale (the Authority did not want to use condemnation as a means of acquisition, even though it had the power to do so); and they had to be small enough so that dwelling units would not be concentrated in any one location. Five of the sites were within the boundaries of the historic district; the other three were in nearby areas being considered as additions to the district. The number of units per site ranged from two to 15, with an average density of about 12 units to an acre.

DESIGN REQUIREMENTS

The development was funded by a loan through the Department of Housing and Urban Development; therefore, HUD guidelines regarding site selection and local building standards were to prevail. In addition, the Housing Authority and the city architect suggested that the designs reflect careful consideration of

the existing fabric, the adjacent structures, and the general street-scape of the area for each new development.

The sites themselves imposed certain restrictions on the design: typical Charleston lots are only 25 to 30 feet wide and about 120 feet deep. However, depth can vary from 100 to 200 feet. These narrow lots are a product of the early 18th century practices of taxing based on the amount of street frontage.

Because most of the sites were in the historic area, the standards established by the city's Board of Adjustment and Board of Architectural Review, as well as standards set by the State Archives Commission and the President's Advisory Council on Historic Preservation, had to be met, and each agency had the right to review the design.

Aside from the specific technical or historic standards to be satisfied, the attitudes and prejudices of the neighborhoods, all of which were based upon existing public housing examples, had to be overcome. This was the most difficult task to be

■ The 67 units of the project are located on eight sites in and around the historic district of Charleston, South Carolina. Typical lots in the historic area are 25 to 30 feet wide and about 120 feet deep (but can range from 100 to 200 feet deep). The eight sites varied widely in size, depending on the number of lots that could be combined, but the side house prototype proved flexible enough to work well under all conditions.

faced by the Housing Authority and the architect. That it was accomplished is testimony to the tenacity of the Board of Architectural Review members and the elected city officials who addressed a constant barrage of criticism from their constituents.

THE SOLUTION

Because of the myriad of standards, the numerous agencies empowered to review and pass upon



TYPICAL FRONT ELEVATION



TYPICAL SIDE ELEVATION



TWO- AND THREE-BEDROOM DUPLEX



SECOND FLOOR



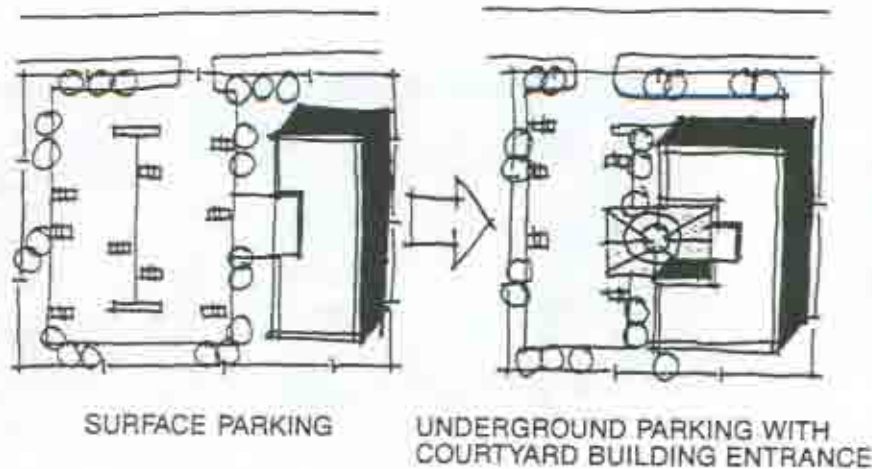
FIRST FLOOR

ONE-BEDROOM DUPLEX

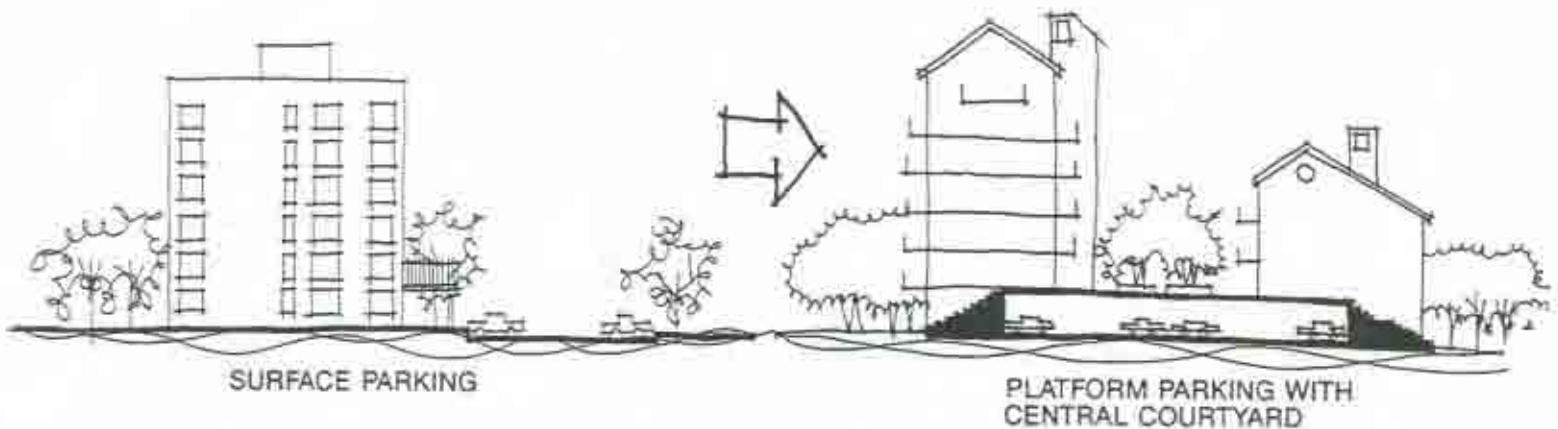


SECOND FLOOR

Designed for low- and moderate-income families, floor plans range from 659 square feet for one-bedroom/one-bath units to 1,279 square feet for three-bedroom/two-bath units. Units are arranged either in the traditional stacked-flat pattern (shown here in the one-bedroom duplex plan) or in a two-story design (as shown in the two- and three-bedroom duplex). Outside the historic area several four-bedroom units were built.



■ Density and land efficiency increase when resident parking is placed underground, below the building. Often, visitor parking is still provided in a surface lot with at-grade access to the building's main entrance.



■ Higher densities can be achieved by placing parking beneath a courtyard platform. The courtyard also offers a valuable open space amenity.

In many cases, the substructure parking is single-level in nature with direct access to the surrounding grade. Topographic differences may allow two parking levels, both accessible from natural grade level at different points on the site. The shape of the parking bays will play a major role in the building configuration above them. Many decked mid-rise buildings are rectangular shapes, approximately 65 feet wide, which corresponds to the double-loaded parking below. In other cases, the parking roof deck may form a platform atop which is the first floor of the building and the open courtyard.

Both vehicular, pedestrian, and visitor circulation becomes complex in mid- and high-rise buildings. The convenience of covered parking with direct internal access to elevators is a marketing benefit that generally justifies cost premiums. Some outside visitor parking at ground level must also be provided, along with a comprehensible visitors' entrance to the building.

With the platform parking concept, an elevator lobby can be included at the parking level with a minimum loss of parking spaces. For courtyard mid-rise buildings, a gracious, landscaped stairway from the natural ground level may provide access to the common, central area.

...TERRACED BUILDINGS

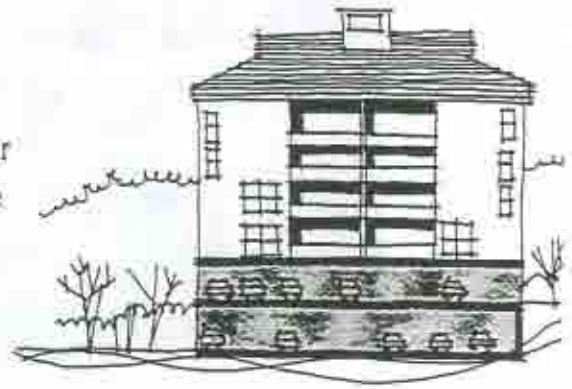
The unit plan forms the basic building block or shape of the mid- and high-rise building. There may be hundreds of units with the same unit plan within the building. Therefore, a meticulously developed layout is essential.

Often the building layout can be changed vertically. By dropping off units from the ends of a building a terraced effect can be achieved. This will allow bulky structures to decrease in size as they increase in height. Further, the roof of a unit may then become the outdoor terrace for one above.

...ARTICULATED BUILDINGS

In mid-rise buildings, the structure's image is probably less significant to the resident than in lower-density housing. However, many directions are being pursued in terms of design. One general trend is toward articulated building forms.

It may be argued that lower-scale mid-rise buildings were developed to bridge the gap between traditional low-density suburban housing and high-rise towers, which often are perceived as institutional and somewhat sterile buildings. By keeping the building height to five or six stories and by introducing low-rise symbols like gables, sloped roofs, chimneys, balconies, and other elements, a design team can create a more friendly image that appeals to the middle-income market—the market most likely to be targeted for infill and medium-density housing.



■ With the right topographic conditions, two levels of parking can be provided with each level having its own at-grade entrance.



■ The contemporary mid-rise building is breaking away from its former rectangular box image with the use of more articulated building forms such as terracing and varied rooflines.



CRANE PLACE SENIOR CITIZEN HOUSING MENLO PARK, CALIFORNIA

Robert T. Steinberg

Crane Place, a mid-rise apartment complex for senior citizens in Menlo Park, California, is located on an irregularly shaped site in an affluent neighborhood adjacent to the downtown area. Although the project looks neither dense nor subsidized, it is both: 93 studio and one-bedroom units and communal facilities are situated on slightly less than a single acre, with construction and operating costs federally subsidized through HUD's now-expired Section

8 program. Residents pay 30 percent of their gross income and government subsidies make up the difference, up to designated market rates.

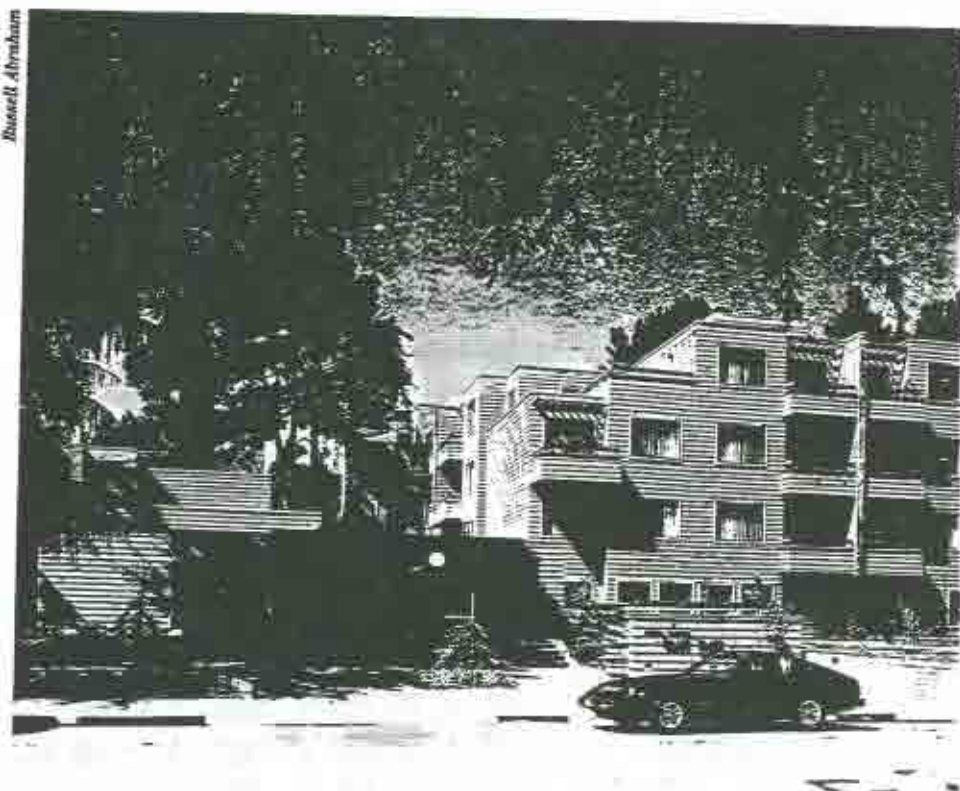
The entire project is planned around a central courtyard to maximize light and air, provide views, and offer opportunities for outdoor activity in a controlled, secure environment particularly appealing to senior citizen residents.

DEVELOPMENT STRATEGY

With an extreme shortage in the area of housing for the elderly, demand for such apartments was not an issue in formulating a development strategy; instead, the major challenge was to locate and acquire

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■ The limited street frontage presented a design challenge; the building had to be large enough to accommodate a variety of functions while not so large that it would overpower other buildings in the neighborhood. It is weighted to the rear of the site, terraced to reduce its scale, and sheathed in cedar shingles to blend with the wooded setting.



Residential Design Guidelines

San Francisco Department of City Planning

November 1989

City and County of San Francisco



Section II

Neighborhood Character

What is the "Neighborhood"?

In assessing whether the visual appearance of a new building or expansion of an existing one conserves the existing neighborhood character, neighborhood is considered at two levels:

- *The immediate context. Here the concern is how the building relates to its adjacent buildings (or, in the case of an enlargement how the addition relates to the existing structure) and how the form of the new or enlarged building impacts the adjacent buildings.*
- *The broader context. Here the concern is how the building relates to the visual character and scale created by the collection of other buildings in the general vicinity. The buildings on both sides of the street in which the project is located are particularly relevant.*

The application requirements for new construction and alterations subject to the interim controls (Department of City Planning, November 1988) include, on p. 15, photographs of certain buildings which provide the context of the new or expanded buildings at the two levels described above. It is compatibility with the character of those buildings that is the primary focus of these guidelines.

What is the "Block-Face"?

The block-face is the row of front facades, facing the street, for the length of one block.

Respect or Improve Upon the Context: Flexibility in Design

In certain neighborhoods, the visual character will be so clearly defined that there is relatively little flexibility to deviate from established patterns. However, in the majority of cases there will be greater leeway in design options.

Building patterns and rhythms which help define the visual character should be respected. A street may have a pattern and a rhythm which unify the rows of buildings on either side. A sudden change in this pattern, an over-sized bay window or a blank facade among more detailed ones, for example, can appear disruptive and visually jarring.

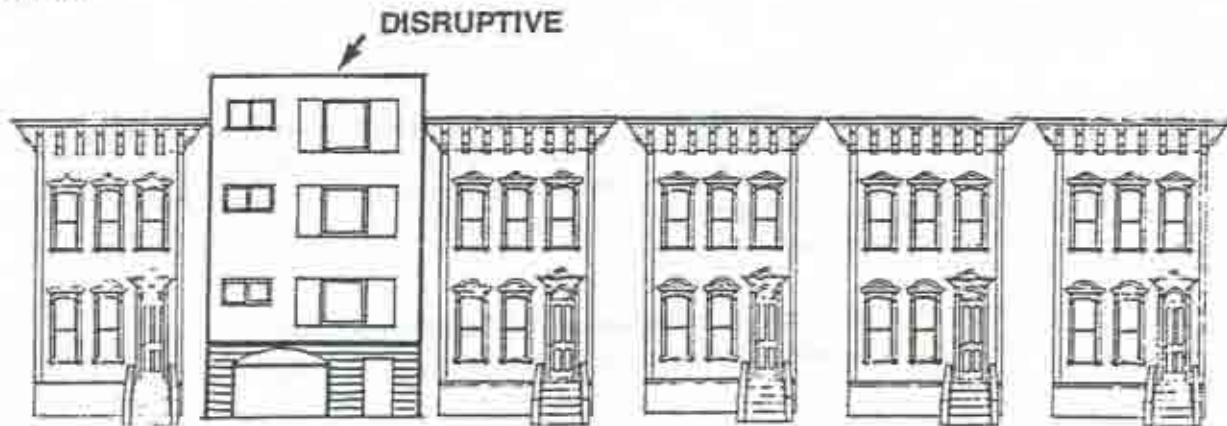
In many areas, architectural styles are mixed or significant demolition and redevelopment have already occurred. Other neighborhoods show little visual character and seem to be awaiting better definition. Here, design should go beyond compatibility with the existing context; it should take the opportunity to help define a desired future visual character for a place.

The following discussion is intended to help identify the restrictions and opportunities presented by a particular neighborhood context and to understand the degree of design flexibility that exists.

Clearly Defined Visual Character

On some block-faces, existing building patterns and architectural styles will strictly define the options for new development. A predominant visual character is clear in the strong repetition of forms and building types in the drawing below.

A small deviation in this neighborhood pattern would draw a great deal of attention to a new structure — attention that is damaging to the existing street character as shown below.



The new structure below is more appropriate.



1 **Siting**

- Location of a project site, and its topography.
- Setback of the building from the front property line.
- Rear Yard i.e. the setback of the building from the rear property line.
- Spacing between buildings and lightwells.

2 **Building Envelope**

- Roofline and profile the building makes against the sky.
- Volume and Mass as expressed by the visible facades.

3 **Scale**

- Dimensions of the elements which make up the building's facades.
- Proportions of the building, and of the elements of its facade.

4 **Texture and Detailing**

- Materials and Colors used to finish the surface of the building.
- Ornamentation used, including the amount, quality, and placement.

5 **Openings**

- Entryways - The pedestrian entries into the buildings.
- Windows - How they are articulated and used in the facade.
- Garage Doors - The vehicular entries into the building.

6 **Landscaping**

For each of the six design elements, the following discussion presents:

- A broad definition of the design element.
- A series of questions highlighting the major design issues under each element.
- Guidelines to follow for ensuring design compatibility.

Siting

The topography and location of the project lot and the position of the building on that site guide the most basic decisions about design. The Location, Front Setbacks, Rear Yards and Side Spacings will be particularly important to the adjacent neighbors and for maintaining or creating rhythm along the block-face, and maintaining a sense of common open space in the interior of the block.

Location

Location refers both to the topography of the site (is it on a hill, in a valley, or along a slope?) and to its position in relation to other buildings and significant urban features.

- *Does the site draw attention to itself because of its topography or position on the block?*
- *Will the project be competing for attention with neighboring structures?*

Respect the Topography of the Site

New buildings should not disregard or significantly alter the existing topography of a site. The context should guide the manner in which new structures fit into the streetscape, particularly along slopes and on hills.



Harmonious

Note how all buildings on this street respect the slope toward the street and the slope up the hill.



Disruptive

The insensitive response to the sloping site is clear in how the subject building is set back from the street, and how its facade and its garage entry overwhelm the adjacent buildings.

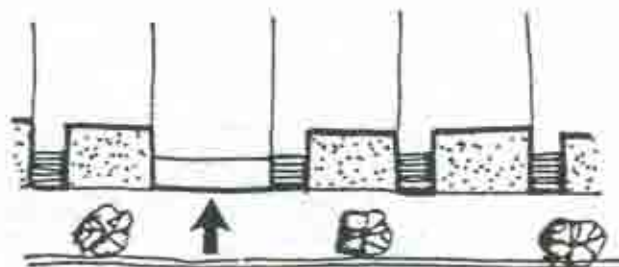
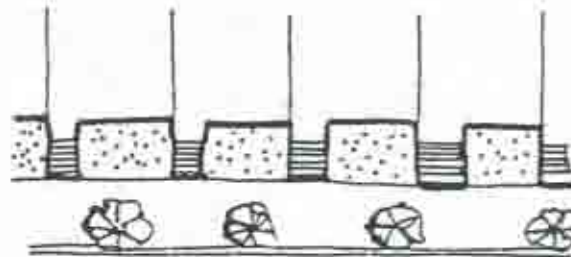
Setbacks

Building setbacks are the distance between the structure's edges and the front property lines. The pattern of setbacks helps establish a rhythm to the block-face and provides a transition between the public sidewalk space and the privacy of the building.

- *Is there an existing pattern of building setbacks?*
- *What effect will changing this pattern have?*
- *Do the proposed setbacks create new building corners along the block-face?*

Respect Setback Patterns

A setback that goes against the established pattern will be disruptive to neighborhood character.



DISRUPTIVE

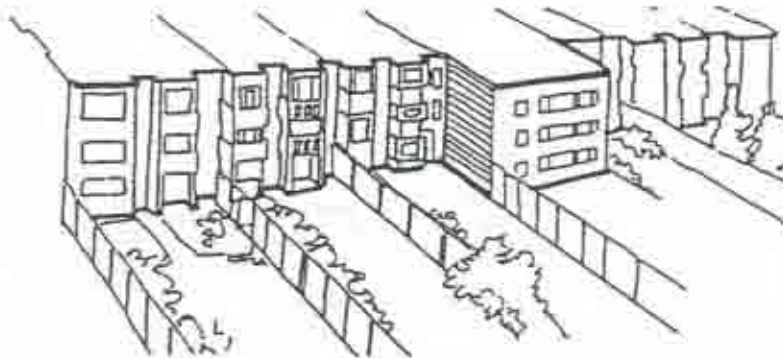
Rear Yards

Rear yards are the spaces between the back of the building and the rear property line. In addition to serving the residences to which they are attached, they are in a sense public in that they contribute to the interior block open space which is shared visually by all residents of the block.

- *Is there a pattern of rear yard depths creating a common open space?*
- *Will changing this pattern have a negative effect?*
- *Are light and air to adjacent properties significantly diminished?*

Respect Rear Yard Patterns and Adjacent Buildings

Intrusions into the rear yard, even though permitted by the Planning Code, may not be appropriate if they fail to respect the mid-block open space and reduce adverse impacts on adjacent buildings.



A one-story rear addition is likely to have less impact on the common open space than a two-story addition, particularly if the rear yards have high, solid fences. Side setbacks also lessen impact.



Finish the Rear Facade and Visible Sides of the Building

The rear of the building, and the visible sides, while not as public as the front of the building, still is in view of neighboring properties and often, depending on topography, of those far beyond. This facade should also be compatible with the character of its neighborhood. The exposed siding of a rear extension should be architecturally finished because of its visual impact on adjacent properties.



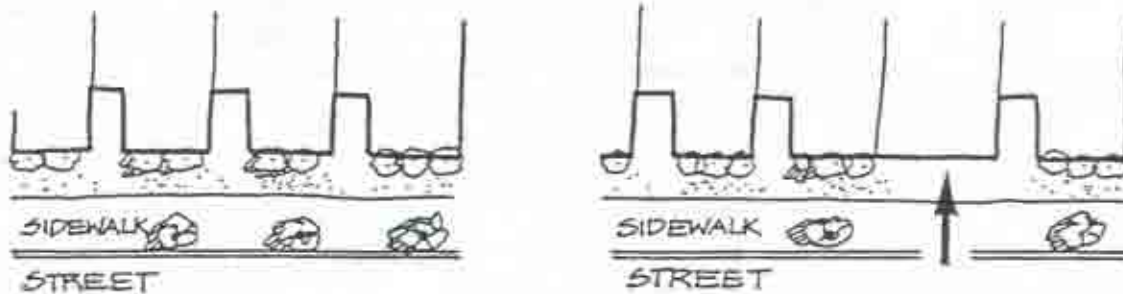
Side Spacing

Spacings are the separations, existing or perceived, between buildings. Side or "notch-backs" between buildings help to underscore the separate nature of each unit and set up a characteristic rhythm to the streetscape composition.

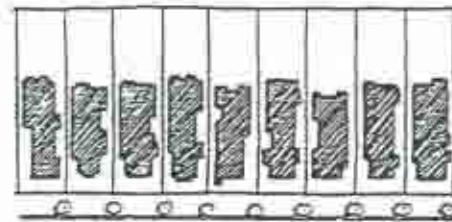
- *Is there a pattern of side spacing between the buildings?*
- *Will changing this pattern have a negative effect?*
- *Can a negative impact be minimized by changing the design?*

Respect Spacing Pattern

As with setbacks, a poorly designed notch-back between buildings can strongly impact the neighboring buildings as well as be visually disruptive.

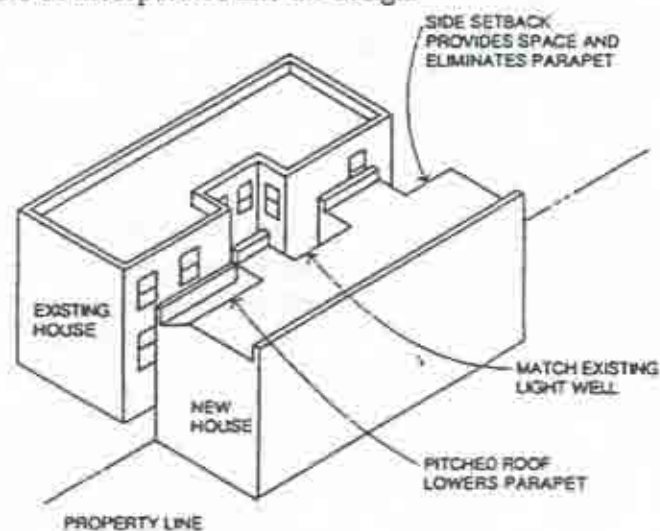


Proposed projects should respect the existing pattern of spacings between buildings.



Incorporate "Good Neighbor" Gestures

Often a small set back or notch can prevent blockage of a neighbors window or light well, or a slight reduction in height can avoid blockage of a view. These kinds of "good neighbor" gestures should be incorporated into the design.



WAYS TO ADJUST ENVELOPE & ADD LIGHT/PRESERVE NEIGHBOR'S VIEWS

■ Building Envelope

The building envelope refers to the exterior elements of a structure — the roof, the front, rear and side facades and other projecting elements such as bays, overhangs and balconies. The actual envelope of a building, within the maximum envelope established by the Planning and Building Codes, should be compatible with the envelopes of surrounding buildings. This section focuses specifically on two aspects of the building envelope which are crucial for compatible design — the Roofline and the appearance of Volume and Mass.

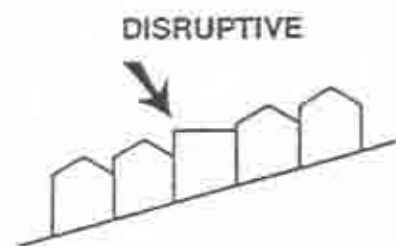
Roofline

The roofline refers to the profile of the building against the sky.

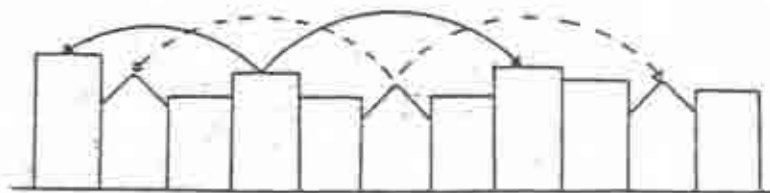
- *Is there an identifiable pattern to the rooflines of buildings on the blockface?*
- *What choices are there to respond to this pattern?*
- *Can the impact of unavoidable disruptions to the pattern be lessened?*

Respect Roofline Patterns

In general, a strong repetition of consistent rooflines calls for similar design for new construction.



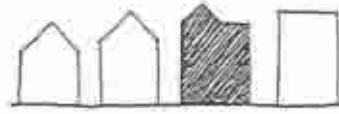
Broad patterns may not be apparent unless the entire block-face is considered.



Minimize the Impact of Inconsistent Building Rooflines

The impact of inconsistent building forms should be responded to creatively.

There is likely to be more than one way to address a complex pattern of rooflines. While the design may respond more specifically to one pattern over another, picking up on several patterns may help to tie the streetscape composition together.



When the inconsistency results from the new building being taller than adjacent buildings, setting the taller element back from the street through a set-back at the prevailing street wall height may be necessary. Corner buildings may require set-backs on both frontages.

Volume and Mass

Volumes are the three dimensional forms of the building. Mass is created by their spatial arrangements and surface treatments. Together they define a building's bulk, weight, and depth. The appearance of volume and mass, influences how people perceive a building as they pass by. San Francisco has a tradition of buildings which exhibit a strong sense of volume and mass: facades tend to have sculptural, three dimensional qualities and the buildings themselves seem to be solidly rooted to the ground.

- *Have the elements which contribute to the feeling of volume and mass along the block-face been identified?*
- *Can the appearance of compatible volume and mass be created in the new structure with facade articulation and ornamentation?*

Compatibility of Volume and Mass

The volume and mass of a new building or an addition to an existing one should be compatible with that of surrounding buildings. Corner buildings tend to show mass and volume more clearly than mid-block buildings and therefore need special attention.

Scale

The scale of a building is its perceived size relative to the size of its elements and to the size of elements in neighboring buildings. The scale of any new building or building alteration should be compatible with that of neighboring buildings. To assess compatibility, the dimensions and proportions of neighboring buildings should be examined.

Dimensions

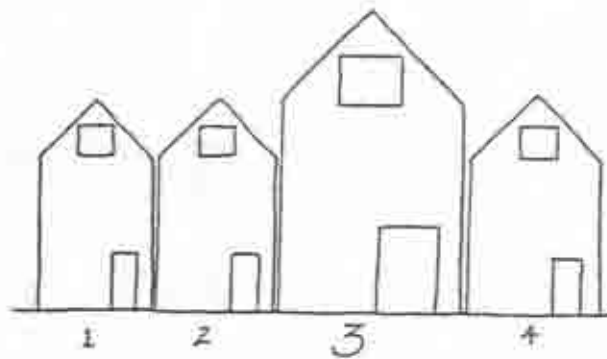
Dimensions are measures of length, width and height.

- *Does the building seem under or oversized in relationship to the buildings around it?*
- *Do certain elements of the building seem to be the wrong size in relation to other parts?*
- *Can the dimensions of the project be adjusted to relate better to the surrounding buildings?*

Respect the Scale of the Neighborhood

If a building is actually larger than its neighbors, it can often be made to look smaller by facade articulations and setbacks. If nothing helps it may be necessary to reduce the actual size of the building.

Buildings may be compatible with their surroundings in terms of proportions, but still be out of scale. Building #3 is too high and too wide.



As in the example above, building #3 is bigger than its neighbors but it is in scale with them because the width of the facade has been broken up and the height has been reduced.



■ Texture and Detailing

Texture refers to the visual surface characteristics and appearance of the building facade. Detailing refers to the manner in which building parts are put together. The texture and detailing of a building's facade often have the strongest impacts on how people perceive a new structure and, therefore, on their sense of the character of the neighborhood. The use of Materials and the degree of Ornamentation give the building its texture.

Exterior Materials

Exterior materials are the architectural finishes used on the visible, exterior parts of the building.

- *Do the building materials complement those used in the surrounding area? Is the quality of the materials comparable to that of other nearby buildings?*
- *Could the materials be finished in a way that would improve their appearance?*

Use Compatible Materials

As with other design elements, the surrounding context provides the cues for the choice of materials. For example, an unpainted shingled building, would not fit in well in a row of painted stucco homes.



Use of similar surface materials will help fit a new structure into the streetscape.



■ Openings

Typically openings in a building — Doorways, Windows and Garage Doors — make up the largest and most distinctive elements of a building's facades. While these features have been considered under each of the previous four Design Elements, they are highlighted separately here for clarity of presentation.

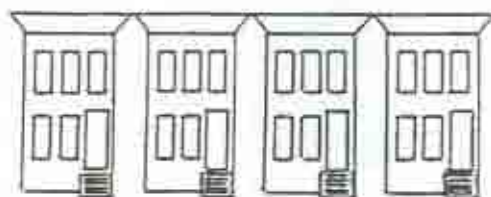
Entryways

Entryways refer to the pedestrian, as opposed to vehicular, entries into the building. They comprise doorways, porches, stairs, and other elements that contribute to the sense of arrival into the building.

- *Are the project's doorways compatible in size importance and details with those around them?*
- *Has a possible existing pattern of stairways been identified?*
- *Does the project respond to this pattern or does it ignore it?*
- *Are the neighboring doorways plain, ornate, prominent, hidden...?*

Respect Stairway Pattern; Position and Level of Entry

Doorways should be designed to be consistent with the surrounding entries. In a neighborhood where the predominant pattern is of stairways located on one side of the building, ignoring this pattern could be disruptive. Where symmetry or asymmetry has become an important ingredient of a building group, the goal is to respect it and respond sensitively to it.



Similarly, a ground level entry in a row of structures with raised entries could interrupt an important pattern.



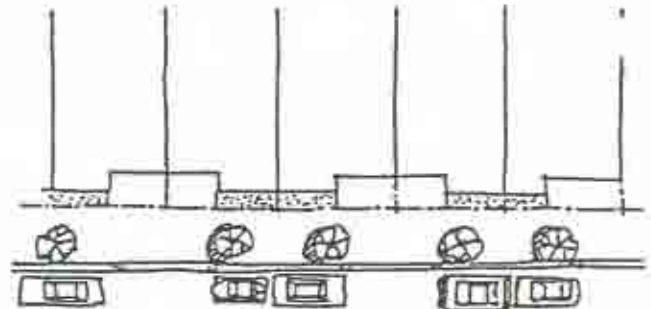
Garage Doors

This refers to the auto entry to the building – the door, its architectural frame and the driveway. This element occupies a major portion of the ground floor of a building on the typical 25 feet wide lot, and, therefore, has a major impact on the pedestrian perception of the building.

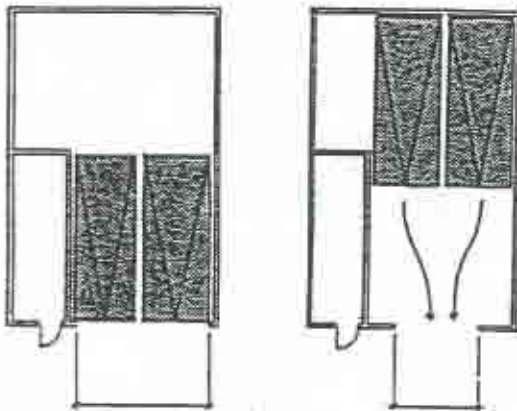
- Does the proposed garage doorway fit in with the design of the rest of the project?
- Is the scale of the garage door compatible with adjacent garage doors?
- Can the visual dominance of the door be reduced?
- Can its visual appearance be improved?

Compatibility of Garage Entry

The design of the garage door should be compatible with the scale of the building and other surrounding buildings on the block. It should create visual interest and should be opaque so the parked vehicle cannot be viewed from the street.



Minimize Negative Impacts of Garage Entries

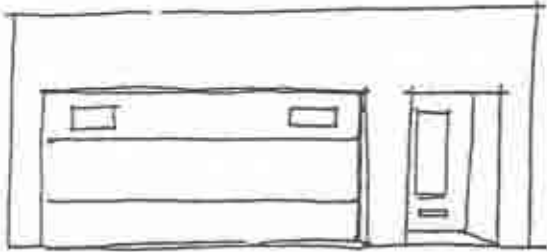


The garage door is often the largest opening in the front of the building. Care must be taken to prevent it from becoming the dominant feature. In most of the city's residential neighborhoods, the width of the garage doors is between eight and twelve feet. The interim controls establish 12' as the maximum width. If the garage is made deep enough, cars can maneuver once inside and the garage door can be reduced and made a less prominent feature of the building facade.

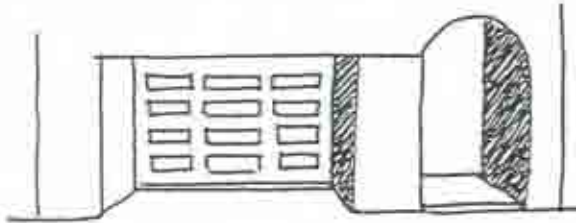
Large lots and multiple lots in a row offer an opportunity to cluster parking areas and minimize the number of garage entries and loss of curb-side parking.

Below are several examples of ways to design garage doors so that they contribute to the buildings character rather than disrupt it.

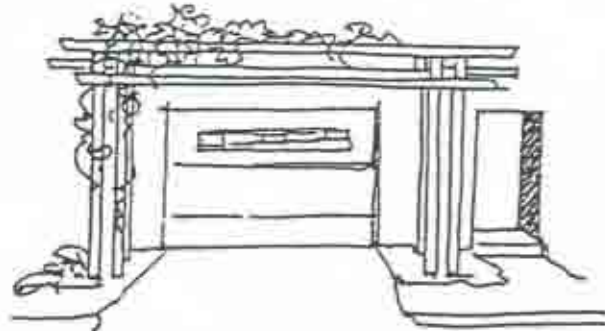
This garage door presents a blank, dull expanse.



A recessed or arcaded garage door is less intrusive.



Garage doors can be embellished to make them more attractive.



Other Parking Openings

On wider lots all of the street level facade may not be needed for garage or building entries. Preferably occupied rooms with windows should occupy the frontage with any parking pulled back from the property line. When parking is at the front of the building care should be taken to screen the parking from view and to make the wall visually interesting. Openings to the parking area, other than garage door, should be limited to those required by the Building Code for ventilation, should be well below eye level, and should be decoratively screened in a way that will block the view of the parking area from the street.

Appendix C: Additional Measures to Support Agricultural Operations

Stokes and Jones Associates. "Sammamish Valley Agricultural and Land Use Study," Redmond, WA, 1980 (Excerpts reprinted with permission of the City of Redmond and Jones and Stokes Associates).

American Farmlands Trust. "Chapter 4. Selecting a Zoning Technique to Protect Farmlands" and "Chapter 5. Supplementary Tools," Planning and Zoning for Farmland Protection: A Community-Based Approach, Washington, D.C., 1987 (Excerpts reprinted with permission of the American Farmlands Trust).

National Trust for Historic Preservation. "Chapter 4. Land Protection Techniques that Local Governments Can Use," Saving America's Countryside, Washington, D.C., 1988 (Excerpts reprinted with permission of National Trust for Historic Preservation).

Final

SAMMAMISH VALLEY AGRICULTURAL
AND LAND USE STUDY

Prepared for:

City of Redmond
15670 85th Street NE
Redmond, WA 98052-3584

Prepared by:

Jones & Stokes Associates, Inc.
1808 - 136th Place NE
Bellevue, WA 98005
206/641-3982

September 1989

Landowner opposition to the Estate Agriculture rezoning of the Sammamish Valley should be minimal. Although some processing uses are eliminated, the halving of the minimum lot size should be perceived as a substantial improvement in development potential in the valley.

Restrict Urban Services. By restricting the provision of urban services, the City can reduce some of the pressure for urbanization of the Sammamish Valley. Future capital improvement programs should be reviewed carefully in assessing potential impacts on the agricultural resources of the Sammamish Valley.

Farming Encouragement

The City could encourage farming in the study area through a variety of actions, including promoting agricultural land in the study area, helping farmers market their products, removing obstacles to farming, subsidizing farming activities, making road improvements to facilitate the movement of farm vehicles and equipment, and helping farmers establish a City of Redmond farmers' association. Some of these actions should not be taken until farmers have located in the study area, but others should be taken soon to encourage farmers to locate in the valley.

Marketing Agricultural Lands and Promoting Agriculture in Redmond

The following marketing actions should be considered by the City:

- o The City should promote and advertise the advantages of farming in the Sammamish Valley, focusing on the potential agricultural productivity of the land, the marketing opportunities associated with urban farming, the amenities associated with living in the City, and programs the City has adopted to help farmers. The City should develop a marketing brochure highlighting this information to distribute to farming associations in Washington. Any of the following recommended programs adopted by the City should be highlighted in the brochure. This action should be undertaken whether or not the City purchases development rights or land in the study area. This action would indicate City resolve in maintaining its agricultural zoning, and could help to bring study area land values in line with agricultural land values.
- o The City should promote the agricultural nature of the Sammamish Valley by placing attractive promotional signs along Willows Road and Redmond-Woodinville Road at the northern and southern ends of the valley. These signs should identify the Sammamish Valley as an agricultural area, and make local residents and tourists aware that the Sammamish Valley is a productive agricultural area that is important to the economy and quality of life of the Sammamish Valley. This action could help to discourage further land speculation in the valley.

- o Once farming has been reestablished in the study area, the City should promote farming activities through articles in the City's "Focus on Redmond" publication. The City should also help to promote the Redmond Saturday Market with signs, promotional articles in "Focus on Redmond," and City activities that include Redmond Saturday Market vendors.
- o The City should help to design and construct roadside farm stands for farmers who wish to directly market their produce on the farm. This program should probably be limited to farmers who have purchased land or entered into long-term leases, would help to attract farmers who are searching for a good farm location, and would generate spin-off direct marketing activity in the area.

Removal of Obstacles to Farming

The City should consider taking the following actions to remove existing obstacles to farming in the study area:

- o The City should construct a 6-foot-high fence along properties fronting the western side of the Sammamish River Parkway to limit public access to farm properties. This initiative would reduce the potential for trespassing and dumping on farm properties, as well as curb theft and vandalism of farm produce and equipment. Fencing has proved effective in similar settings in Bellevue.
- o The City should consider working with the county and the state to coordinate and consolidate permits and inspections required of small farms operating within the city limits. Streamlining permit requirements would allow farmers to spend more time farming and less time filling out forms and meeting with inspectors.
- o The City should help coordinate farm employment needs with local high schools, unemployment offices, and social organizations such as the Volunteers of America. Farmers could contact a designated person at the City when they need full- or part-time help, and the City could notify schools, unemployment offices, and social organizations. Conversely, the City could advertise for persons interested in seasonal or part-time farm work, and could put these persons in contact with farmers requiring periodic labor.
- o The City should adopt a right-to-farm ordinance to protect farmers from complaints from, and conflicts with, urban neighbors. The ordinance should state that the City will not assist in the abatement of the effects or potential inconveniences created by normal farming operations. The adoption of this ordinance would send a message to existing and potential Sammamish Valley farmers that agriculture is welcome in the City.

Subsidizing Farming Activities

The City should consider adopting the following measures to subsidize agriculture in Redmond:

- o The City should adopt a resolution stating that business license taxes will never be imposed on active farming operations within the City, including farmstands, U-pick operations, and vendors at farmers' markets.
- o The City should lower, or eliminate, inspection and permit fees required for farming operations. This program would enhance the City's ability to attract urban farmers to the study area.
- o The City should consider paying the vendor fees for Redmond farmers selling produce at the Redmond Saturday Market. This action would help to support the Redmond Saturday Market and would encourage farmers engaged in direct marketing to locate in the City.
- o The City should encourage farmers to enroll in the open space taxation program by distributing information on the program to new farmers or farmers indicating interest in locating in Redmond.

Improving Access to Farms and Improving Safety of Public Roads

Heavy traffic along Willows Road and Redmond-Woodinville Road makes the movement of farm vehicles difficult and dangerous. In addition, access to farmland within the study area is poor. The City should consider the following actions for improving safety and access to agricultural properties:

- o The City should place signs along Willows Road, Redmond-Woodinville Road, 116th Street, NE, and 124th Street, NE warning drivers that the roads are frequented by slow-moving farm vehicles. This action should improve the safety of the roads for farm vehicles, and make drivers aware that they are traveling through an agricultural production area.
- o The City should work with the King County Parks Department to allow farm vehicles to use the existing gravel road along the east side of the Sammamish River. This road could be extended north to 124th Street, NE. This action would allow farm vehicles to move among fields within the study area without using public thoroughfares, and would allow produce and supply trucks to turn onto 116th Street, NE and 124th Street, NE before reaching the heavily used Willows and Redmond-Woodinville Roads.

Similarly, if the City purchases properties south of 116th Street, NE and reduces minimum lot sizes to 10 acres, the City should consider constructing a north-south farm

road that connects with 102nd Street, NE, dividing the study area between the Sammamish River and Willows Road. This road would greatly improve access to parcels throughout the study area and would encourage on-farm direct marketing operations.

Encouraging a Redmond Farmers' Organization

Farmers' organizations provide farmers an opportunity to coordinate marketing efforts, share knowledge, and solve common problems. The City should take the following actions to develop a strong Redmond farmers' organization once farming has been re-established in the study area.

- o The City should take the lead in organizing a Redmond farmers' group by contacting local farmers and providing free City facilities as meeting places.
- o The City should periodically send a representative to the farmers' organization meetings to listen to the concerns of farmers, and to assist in providing solutions to problems concerning regulations, complaints from neighbors, transportation, and direct marketing.

Monitoring

The City should monitor events in an agriculturally reinvigorated Sammamish Valley for two reasons: to ensure maintenance of environmental quality and to confirm the satisfactory performance of City programs.

Environmental Monitoring

Examples from agricultural areas across the United States prove that agriculture can cause environmental harm. The most sensitive receptors for chemical pollutants from farms are surface water and groundwater.

Groundwater Monitoring. A series of groundwater sampling wells should be installed at critical points around the Sammamish Valley. The wells should be sampled prior to the valley's use for active agriculture, to establish baseline groundwater quality conditions. Thereafter, the wells should be sampled at appropriate intervals to ensure that agricultural chemicals are not entering the groundwater supply.

Surface Water Monitoring. Drainage from agricultural (and urban) areas can pollute surface waters. The quality of water in the Sammamish River as it traverses the valley should be checked regularly. Environmentally harmful and persistent chemicals should be targeted during the sampling period. Sampling intervals should emphasize periods of maximum drainage from the fields (in spring) and periods of low river flows, when the least dilution of pollutants occurs.

PLANNING AND ZONING FOR FARMLAND PROTECTION:

A Community Based Approach



Chapter Five

SUPPLEMENTARY TOOLS

Once agricultural zoning is in place, other farmland protection techniques often become attractive to landowners subject to the zoning restrictions. These techniques can be used effectively in conjunction with agricultural zoning and may even help to compensate for an apparent loss of development value.

Relationship Between State and Local Farmland Protection Programs

States can play a vital role in the success of local farmland protection initiatives by declaring their commitment to the protection of the state's high value and irreplaceable farmland. Such a public declaration at the state level not only demonstrates consistency between state and local objectives, but provides a hospitable policy environment for local programs. The positions of local governments against political and legal challenges may be strengthened by a state-wide policy as well.

Governor James J. Blanchard made Michigan the eleventh state in the country to adopt such a state-wide farmland protection policy by signing Executive Directive 1986-2, Preservation of Michigan Farmland. This policy directs state agencies to more carefully monitor their own impacts on farmland conversion. In Blanchard's words, this state policy demonstrates *"the state's commitment to farmland preservation, and... serve(s) to further encourage local units of government to take actions to identify and protect agricultural land through land use planning and zoning techniques."* The adoption of the state directive will serve local Michigan communities well in their efforts to develop and implement farmland protection programs.

Growth Management Systems

A community seriously dedicated to the protection of its farmland must find a way to direct development away from productive agricultural land to areas where urban growth is most appropriate. A comprehensive growth management system, developed through sound planning and

combined with one or more of the techniques detailed in this publication, offers the best chance for successful farmland protection.

For example, some municipalities establish growth boundaries around existing urban areas to ensure a contiguous, cost-effective pattern of nonfarm development. The boundaries may be extended in a concentric fashion as predetermined densities are reached. Others place a limit on the total number of building permits issued each year or key approval of subdivisions to the availability of sewers, schools and other necessary public services. Following is a brief review of several state and local techniques that would fit well into an established growth management system.

Purchase of Development Rights

Full ownership of land, also known as fee simple ownership, can be defined as a set of rights or interests in the property. Such property rights include, but are not limited to, the right to sell; the right to use the land for agriculture and forestry; and the right to build structures on or beneath the surface, otherwise known as development rights.

State and local governments can protect high quality farmland parcels through the use of Purchase of Development Rights (PDR) programs whereby the development rights are purchased and then retired. The landowner is paid a one-time amount for the value of his development rights, defined as the difference between the fair market value of the land and its value solely for agricultural purposes. The closer a parcel is to urban areas and development pressures, the greater the value of the development rights - both in absolute value and as a percent of market value.

Since development rights apply to each specific parcel, as do all less than fee interests, their removal must be accomplished parcel-by-parcel and recorded with each deed. This places a perpetual lien on the property and is binding in all subsequent purchases. The terms of the restriction are enforceable by the unit of government holding the development rights.

In order for a voluntary PDR program to be successful, there must be definite incentives both for landowners to sell their development rights and for the public to purchase them. For farmers who wish to continue farming, the incentives are quite clear. The severance of the development rights may serve to lower property tax assessments to reflect reduced farm value and the sale of such rights provides ready capital. There may be additional estate or inheritance tax benefits as well. Public

support for such programs is usually strongest in areas experiencing intense development pressure. In such jurisdictions, there is often a heightened awareness of the increased public service costs which accompany nonfarm development. There also tends to be a strong desire to preserve the community's cultural and aesthetic values, and to protect local sources of food production.

Currently, there are twelve PDR programs, either at the state or local level. The majority of these programs are in the northeastern states where intense nonfarm development pressure is competing for limited land resources.

In the late 1970s there was a major PDR initiative in Canton Township, Wayne County, Michigan. Although there was significant public support for this proposal, it was narrowly defeated at the polls, probably due to the additional millage proposed.

Communities are cautioned, however, that there is no explicit enabling legislation in Michigan which authorizes the purchase of development rights. Communities might justify such action on an "implied powers" argument, but are cautioned to proceed under advice of their own legal counsel.

The Michigan Legislature passed the *Farmland and Open Space Preservation Act*, Public Act 116 in 1974, providing tax benefits to landowners who sign a contractual agreement with the state to keep their land in agricultural use for a specific period of time, ranging from 10 to 99 years. In return for this development restriction, the owner is entitled to claim as a credit on the Michigan Income Tax form the amount by which the property taxes on the farmland under agreement exceed 7 percent of total household income. In a sense, this is a temporary purchase of development rights program. By the end of 1985, a total of 4.4 million acres had been enrolled in PA 116, and in 1985, the state paid \$75 million in tax credits and rebates to participating landowners. Enrollment in PA 116 often becomes a logical and valuable next step to landowners already subject to land use restrictions from agricultural zoning.

Transfer of Development Rights

Whereas development rights are purchased and retired under PDR programs, they are purchased and transferred for use in another location under Transfer of Development Rights (TDR) programs.

TDR programs are intended to maintain designated areas in agricultural or open space use while, at the same time, compensating the owners of the protected land for the loss of their right to develop it for nonfarm purposes.

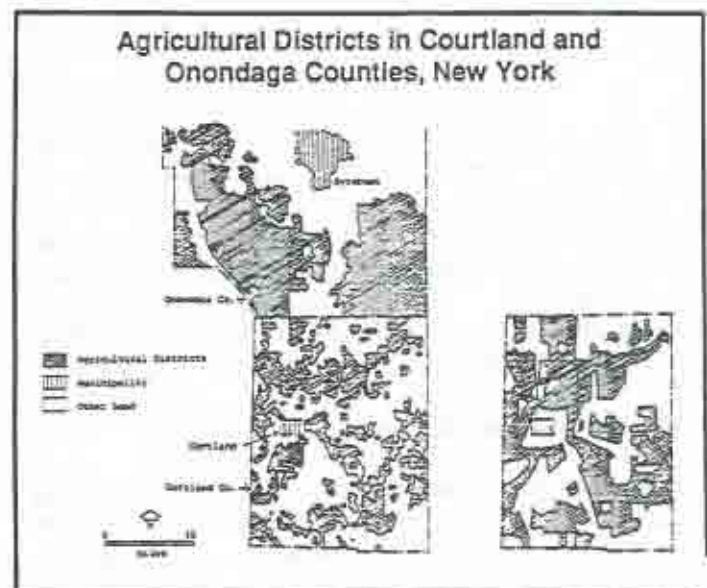
A typical TDR system establishes both a preservation district and a development district. Landowners in the preservation district are assigned development rights, but are not allowed to develop their property. Instead, they may sell their development rights to landowners in the development district who may then use these rights to build at higher densities than allowed under current zoning guidelines.

Although this technique holds real promise, widespread adoption has not been achieved due to the complexity of administering such a program and the lack of enabling legislation in many areas.

Agricultural Districts

Agricultural districts are legally recognized geographic areas formed voluntarily by one or more landowners and approved by one or more government agencies. Districting programs are based on the premise that if farmers are given sufficient incentives to create districts in which farming is the only activity allowed, and if they are protected from many of the factors which make farming undesirable or unprofitable, they will keep their land in agricultural use.

In most programs, the districts are created for fixed but renewable periods of time ranging from four to ten years. In exchange for the landowners' agreement to place their property in an agricultural district, the owner is granted specific incentives and protection from various farmland conversion factors. Such incentives include differential assessment, protection from anti-nuisance ordinances, protection from adjacent non-agricultural development and protection from state agency regulations that interfere with farming.



During the 1986 legislative session, North Carolina became the most recent state to adopt an agricultural districting program. There are now fourteen such programs, either at the state or local level.

Conservation Easements--Private Action

Like any business, profitability and economic survival are critical concerns in farming. Yet one characteristic which sets farmers apart from other business people is their choice to work directly with the land. This choice reflects a commitment to a rural way of life that sustains important values such as the protection of the land and of the wildlife it supports. Donating an agricultural conservation easement over farmland to a qualified conservation organization such as the American Farmland Trust not only ensures that these features of the land will survive for generations to come, but often provides significant tax benefits as well.

A conservation easement is a documented agreement through which landowners may voluntarily restrict their land to a specific use such as recreation, forestry or farming in exchange for certain tax benefits. The American Farmland Trust (AFT) focuses on agricultural conservation easement transactions which restrict the land to farming and related uses.

Conservation easements are individually tailored to reflect each landowner's particular needs and situation. While agricultural easements generally restrict all nonfarm uses, limited development may be permitted to allow for the construction of an additional farm home or other farm related structure. The easement may apply to the entire parcel or to only a portion of the land.

A landowner who conveys an agricultural easement to AFT retains all rights essential to the continuation of the agricultural operation and all others which do not interfere with the ability to farm the land. The nonfarm development rights, however, are separated from the property and then retired. The landowner retains title to the property, the right to sell, the right to restrict public access, and the right to pass it on to heirs.

Rules governing tax benefits for donations of agricultural conservation easements are set forth in PA 197, the Conservation Easement law passed by the U.S. Congress in 1980.

The conveyance of an easement can reduce estate, inheritance, and federal income taxes if certain criteria established by the Internal Revenue Code are met. One such criterion states that *"the preservation of open space (including farmland and forestland)...must be pursuant to a*

clearly delineated federal, state or local governmental conservation policy." This criterion clearly demonstrates that the existence of local agricultural zoning can enhance private conservation opportunities by supporting the argument that an agricultural conservation easement donation qualifies for the federal tax deduction. Donations of conservation easements, whether during the landowner's life or by bequest, reduce the value of the farm upon which estate and inheritance taxes are computed, which may result in significant tax savings to heirs. The amount of the tax savings is based on the value of the easement which is based on the difference in the land's value before and after the easement restrictions are applied. These values must be determined by a qualified land appraiser.

In addition, under the Internal Revenue Code, conservation easement contributions are treated as charitable gifts. The value of this gift is deductible up to 30% of adjusted gross income in the year of the gift. If the value of the easement exceeds 30% adjusted gross income, the excess may be carried over and deducted in up to five succeeding tax years.

Contact the American Farmland Trust for more information on the benefits of contributing farmland easements (address on back cover).

Saving America's Countryside

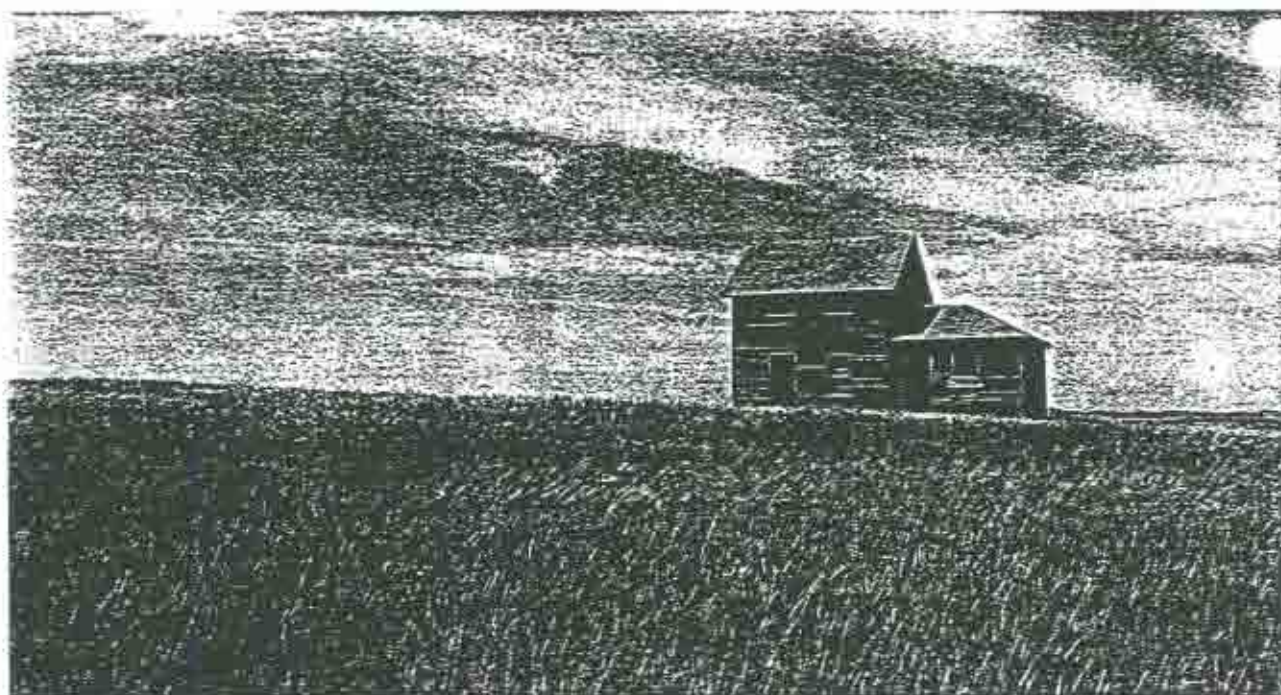
A GUIDE TO RURAL CONSERVATION

BY Samuel N. Stokes WITH A. Elizabeth Watson

AND CONTRIBUTING AUTHORS

Genevieve P. Keller and J. Timothy Keller

FOR THE NATIONAL TRUST FOR HISTORIC PRESERVATION



The Johns Hopkins University Press
BALTIMORE AND LONDON

The Secretary of the Interior's Standards for Rehabilitation

The federal government developed the following standards for evaluating rehabilitation work done on buildings for which owners apply for tax credits (6.IX.B). These standards can also be incorporated into local preservation ordinances.

1. Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use the property for its originally intended purpose.
2. The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.
3. All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.
4. Changes which may have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.
5. Distinctive architectural features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.
6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other vi-

eighteenth-century Birmingham Road that lies within the township. In addition to the usual historic district review, commercial zoning for the portion of the district covering the village of Dilworthtown is tailored to its historic character. Outside the village, development innovations such as clustering are encouraged to minimize the impact of residential development. A booklet developed by the township for property owners gives the history of the district, covers design considerations for new construction and alterations, and lists procedures for obtaining a permit.

VI. OTHER TECHNIQUES

Since this chapter has covered a considerable number of land-protection techniques and their variations, it may be helpful at this point to categorize the many powers that local governments can use for rural conservation. So far, this chapter has concentrated largely on the ability of local governments to use their power to regulate land use for the health, safety, and general welfare (including aesthetics) of the community, a power often called the "police power." Other powers of local governments can also be used to guide land-use activities. The power to tax, for example, which can be used to encourage farmland retention, is covered in this section. The power to spend and the power to acquire property are highlighted in the earlier discussion of capital improvements (4.II.F) and return in this section as aspects of agricultural districting, a hybrid approach using a variety of governmental powers. A twist to these powers is also discussed: a "hands-off" approach forbidding regulation of farm practices called a "right-to-farm" law.

A. Taxation

Adjustments in real estate taxes can influence rural conservation. Differential taxation—also known as preferred, use-value, restricted-use, or deferred taxation, and present in all fifty states—lowers the tax burden on those lands a community wishes to protect from development. Rather than assessing these lands at their full market value, the local government assesses them at "use value." For instance, farmland close to a city might be assessed at the same rate as farmland of comparable quality remote from development pressure, instead of being assessed as land ripe for development. Since high property taxes are among the factors influencing some farmers to go out of business or sell their land for development, reduction of these taxes may encourage farmers to continue farming or to resist the temptation to sell off portions of their farms.

Used as part of a package of techniques, differential tax assessment programs may help preserve open space. Agriculture, followed by forestry, is the most frequently designated use that entitles an owner to differential tax assessment. Natural, scenic, recreational, and historical resources are named in some states' programs.

In most states, the owner who develops a property must pay a penalty for the back taxes that would have been owed if a differential assessment had not been in effect, or both. Even so, differential tax assessment alone is not a long-range land-protection technique. For example, differential assessment lowers the costs of holding land for speculators, who frequently qualify for such programs by arranging for their land to be

farmed. The prospect of paying several thousand dollars in back taxes is not a significant disincentive to a major development.

Another differential taxation system is called Urban and Rural Service Area Assessments. URSAA distinguishes between properties ultimately to be developed, through the extension of public water and sewer lines, and properties not targeted for development. The properties designated to receive development are taxed at a higher rate. According to two observers of growth management systems, the URSAA system "discourages speculative investment and channels development pressures into those areas which are most acceptable."⁸

Some communities have coupled deed restrictions with lower taxation. In California, for example, communities can enter into voluntary restrictive agreements with landowners, who receive lowered taxes in exchange. Perinton, New York, has created a program of voluntary short-term conservation easements tied to a sliding-scale reduction of taxes based on the number of years the easements run.

Another means of using taxing authority to achieve rural conservation is a high capital gains tax on real estate held for a short term. Vermont has found that a capital gains tax tied to the length of time the land is held helps to protect rural land from short-term speculation. Under Vermont's Land Gains Tax, owners are liable for taxes of up to 80 percent of their profit if they sell property within the first year of ownership. A sliding scale reduces the maximum tax liability to 50 percent the second year and so on downward until there is no penalty after six years of ownership. The law allows long-term farmers to make a profit on their land when they retire, but discourages speculators who want to make a quick profit. (A different kind of tax on real estate transactions, the transfer tax, is described in *Land Banking*, pp. 184-85.)

Finally, in Wisconsin and Michigan, the state income tax has been tied to local zoning in an innovative fashion. Farmland owners receive a deduction on their state income if their land is included in exclusive-use agricultural zones, which must be passed at the local level. As a result of this financial incentive, farmers heavily supported zoning. Minnesota has a similar program, in which farmers are given an unusual property tax credit of \$1.50 per acre for land in exclusive agricultural zones.

B. Agricultural Districts

By 1986, twelve states had enacted provisions for agricultural districts to help protect agriculture. These are specially designated areas where state and local governments may be limited in their ability to restrict farm practices (as described below), take farmland by eminent domain or annexation, or allow the construction of utilities. To participate, farmers sign voluntary agreements to keep their land in agriculture for a specific period of years, with the option of renewing. In some states, farmers must be part of an agricultural district to qualify for differential tax assessment or purchase of development rights (Case Study 11 and S.V.C.).

The required number of participating farmers, the amount of acreage that must be included, and the duration of time a district will exist vary from state to state. In New York, for example, an owner or owners of at least five hundred acres may apply to form an agricultural district. Public hearings and county and state approval are needed to establish a district.

sual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs, or the availability of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.

8. Every reasonable effort shall be made to protect and preserve archaeological resources affected by, or adjacent to any project.

9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural, or cultural material, and such design is compatible with the size, scale, color, material, and character of the property, neighborhood, or environment.

10. Whenever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

(Code of Federal Regulations, vol. 36, pt. 67.7.)

The need for a district is reexamined every eight years. Local Cooperative Extension Service agents or Soil Conservation Service District Conservationists can provide information on a particular state's programs.

C. Right-to-Farm Laws

Most states have laws addressing the conflicts between farmers and their nonfarm neighbors, generically called "right-to-farm laws." In general, these laws seek to protect farmers from nuisance suits by nonfarm neighbors objecting to the odors, dust, noise, or other aspects of farming they find unpleasant. The laws also prevent local governments from passing ordinances regulating ordinary farm practices. Not only farms but also food processors and related enterprises may be covered by such laws. Negligent or improper management, water pollution, or impacts on public health and safety generally are excluded from such protections.

CASE STUDY 11

Carroll County, Maryland: Multiple Means of Protecting Agricultural Lands

Protecting farmland has been a high priority in Carroll County, Maryland, since 1978, when the county commissioners amended their zoning ordinance. Farmland preservation is carried out through three interconnected programs: agricultural zoning, voluntary creation of agricultural districts, and purchase of development rights (PDR).

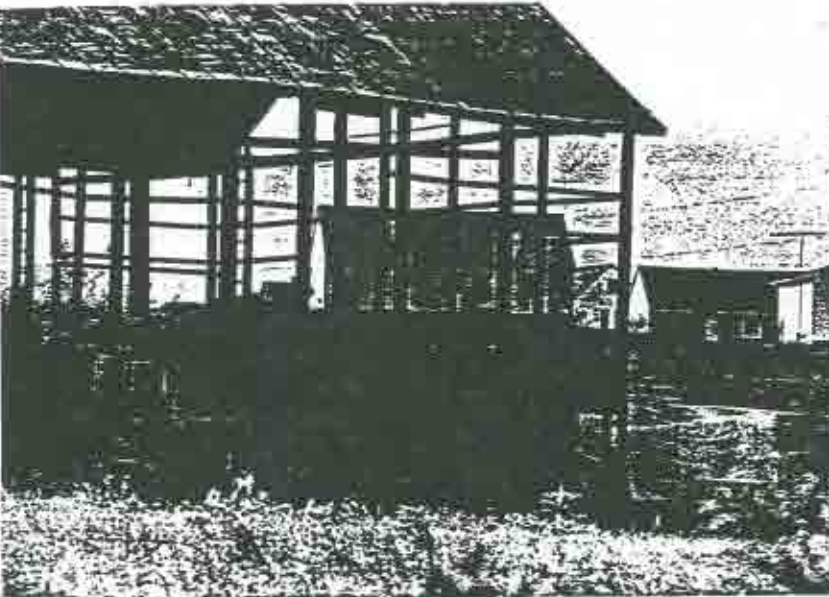
A large rural county with substantial amounts of prime farmland, Carroll County is close enough to both Baltimore and Washington, D.C., to be facing considerable development pressure. In 1970, the county's population was 69,000; as of 1985, it was 109,000. Despite such growth, agriculture—principally dairy products, livestock, and corn—is still big business. In 1984, Carroll County farms and businesses supporting farms grossed more than \$180 million. Sixty percent of the 291,602-acre county is devoted to agriculture, with more than 71,000 acres rated as prime farmland.

As of mid-1986, there were 180 farms protected by agricultural districts in the county, comprising more than 25,000 acres. Farmers enter agricultural districts voluntarily with approval from the county. Farms must be at least 100 acres and consist of good-quality soils. Land in agricultural districts must remain in agriculture for at least five years and cannot be subdivided, except to provide homes for the owner's children and farm laborers. Farmers in agricultural districts are protected from nuisance suits related to their agricultural activities and are eligible to sell their development rights (S.V.C) to the state upon approval by the county.

The county's agricultural districts and agricultural zoning go hand in hand. The agricultural zone, covering 189,000 acres—65 percent of the county—allows only one new dwelling unit per 20 acres, with a minimum lot size of 1 acre. Developers are encouraged to cluster any de-



Advertisements like this one on a Carroll County dairying barn add much to the cultural landscape.

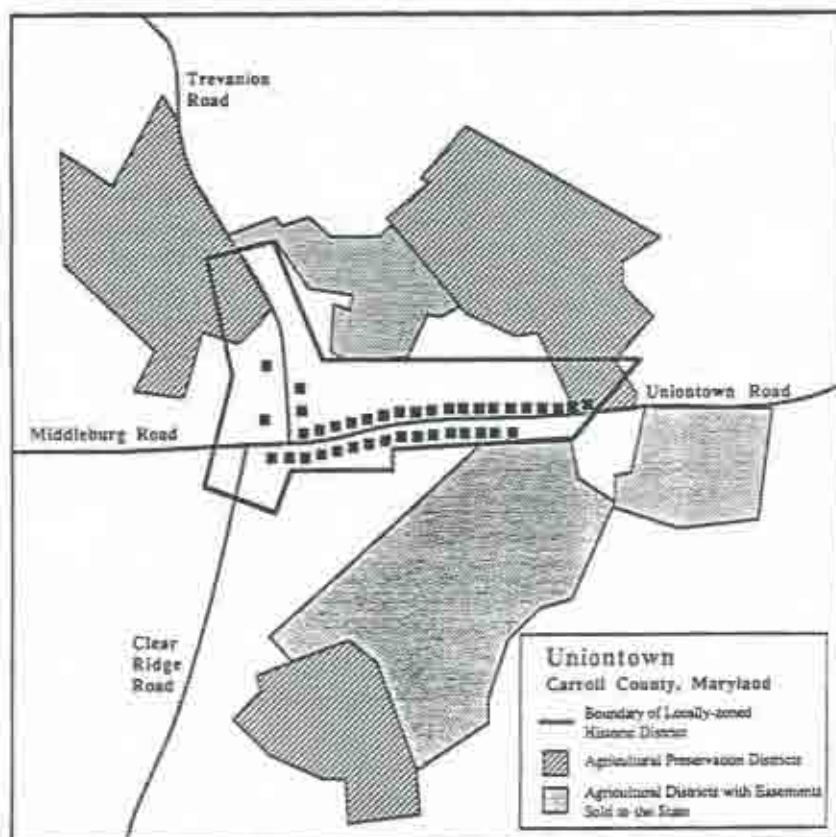


Dairying is still a major business in Carroll County despite its proximity to Baltimore, Frederick, and Washington, D.C. The county has restricted subdivision within agricultural districts and acquired development rights to preserve farmland. However, much farmland has already given way to development.

velopment in the agricultural zone, so that some land on developed parcels remains permanently available for agriculture. Clustering, however, is "not as easy to accomplish as we'd like it to be," says Marlene Conaway, formerly the county planning department's agricultural preservation specialist. "It's difficult because many people who move out here want farmettes. But we have been fairly successful." She hopes that as farm owners see more clustering in use and realize that the county is committed to discouraging sprawl in the agricultural zone, more owners will be encouraged to form agricultural districts.

The "hand-in-hand" nature of the zone and the districts works both ways, however. Passing the agricultural zoning required assurances from the county that farmers would be able to form agricultural districts, thus becoming eligible to sell their development rights, and that the

Conservationists in Uniontown, Carroll County, have protected both historic buildings and the surrounding farmland that provides the setting for the village. Uniontown, which dates from 1809, is listed in the National Register of Historic Places and is protected by a county historic preservation ordinance that regulates changes to the buildings, sidewalks, and street trees. Farmers whose land surrounds Uniontown have voluntarily placed their land in agricultural districts. The owners are protected from nuisance suits and are eligible to sell their development rights to the state.



county would participate financially in the state's program for purchase of development rights. Each is necessary for the other to exist, says Conaway: "Zoning covers more farmland, but it's not forever: the political climate could change. If we lose the zoning, then we'd start losing districts when their time is up. The more agricultural districts we get, though, the more sure we are of maintaining the zoning," since it would make little sense to alter the agricultural zoning in areas where most farms are protected by districts, and ultimately by purchase of their development rights.

Each year since 1979, the state of Maryland has appropriated funds for the Maryland Agricultural Land Foundation to purchase development rights from farmers whose land is in agricultural districts. Counties also contribute. Carroll County has led the state in contributing to the program, appropriating close to \$3 million through mid-1986 to match \$7 million from the state, which has purchased easements restricting development rights on ninety-five farms, protecting 13,100 acres.

The foundation uses a bidding system to arrive at a price per acre for development rights. In 1985, Carroll County's average for development rights was \$682 per acre, even though unrestricted farmland in the county sells for around \$2,500 per acre. Once a farmer has notified the state of an interest in selling development rights, the foundation appraises the farm to establish its restricted and unrestricted market value. The difference between the two values is the appraised value of the de-

velopment rights. The farmer informs the state of his or her asking price per acre before the appraisal is done. Those offers below appraised value receive first consideration by the state, and the state cannot pay more than the appraised value.

The program has proven popular with county farmers and their neighbors, who are "happy to see the farms protected and their rural lifestyle maintained," says Conaway. In fact, farmers have offered more easements than the foundation can buy. County officials hope eventually to obtain easements on 100,000 acres. They believe this is the minimum amount of farmland the county must preserve to assure the continued viability of agriculture and local agribusiness.

County officials note that much of the money farmers are receiving for their development rights is being reinvested in their farms, often to buy more land or equipment. An added bonus of the PDR program is that owners of the restricted farms become very interested in soil conservation in order to maintain productivity. In fact, the foundation recently amended its standard easement to require that farms in its program implement a conservation plan. The principal problem county officials see—aside from wishing more funds were available to accelerate purchases—is that they cannot act fast enough in hardship cases. They are considering augmenting the state program by purchasing development rights directly for later transfer to the state.

VII. DRAFTING AND ADMINISTERING ORDINANCES

In practice, most local governments adopt new regulations that are variations on those used elsewhere. By using existing ordinances as models, a community can avoid the errors or oversights that might result from drafting an original ordinance. "Plagiarism," says one rural planner, "is an asset in planning."⁹ Another expert, though, cautions rural communities in this practice: "Do not assume that another community's ordinance is perfect. There are many obsolete and even illegal provisions in existing land-use regulations."¹⁰ Moreover, a substantial amount of time may still be needed to eliminate inappropriate provisions and add those that are tailored to the community's particular circumstances. Environmental conditions vary from place to place (just think of the dry desert of Arizona versus subtropical Florida) and uses compatible in one community may be incompatible in another—hog confinements, for example, may or may not have their place.

Since land-use regulations have been used in this country for almost eighty years, there are numerous legal precedents. Even so, drafting or amending an ordinance, like creating a comprehensive plan, usually requires professional assistance, in this case often from both a planning staff or consultant and an attorney experienced in land-use law. Such professionals help to ensure that an ordinance is consistent with the state's enabling legislation, including procedures for enactment, and that it can withstand a legal challenge. As is also the case with developing a new plan, the more community involvement there is, the more useful and acceptable the product is likely to be.

LAND-PROTECTION TECHNIQUES THAT LOCAL GOVERNMENTS CAN USE

Appendix D: Guidelines to Maintain Rural Character When Allowing New Rural Development

National Trust For Historic Preservation, "General Guidelines for Rural Development," Saving America's Countryside, Washington, D.C. (Excerpts reprinted with permission of National Trust For Historic Preservation).

Yaro, Robert D., Randall G. Arnt, Henry L. Dodson, and Elizabeth A. Brabec. Dealing with Change in the Connecticut River Valley: A Design Manual for Conservation and Development. Amhearst, MA, 1990 (Excerpts reprinted with permission of Center for Rural Massachusetts).

Saving America's Countryside

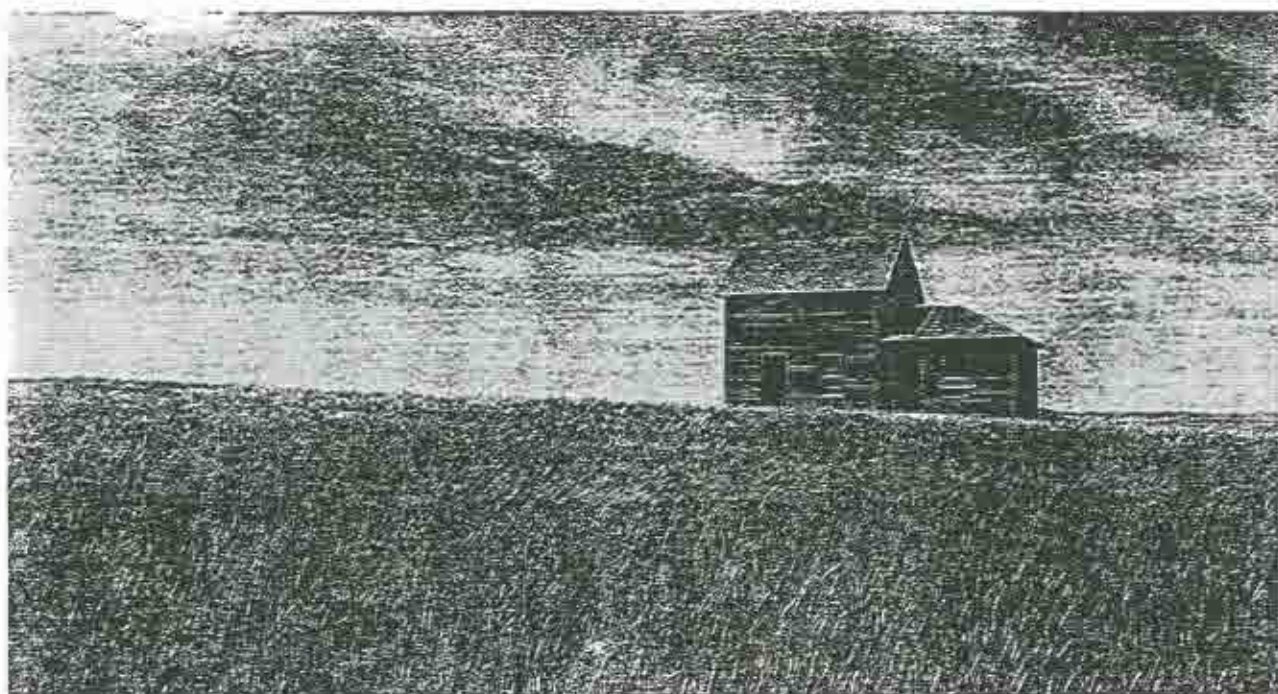
A GUIDE TO RURAL CONSERVATION

BY Samuel N. Stokes WITH A. Elizabeth Watson

AND CONTRIBUTING AUTHORS

Genevieve P. Keller and J. Timothy Keller

FOR THE NATIONAL TRUST FOR HISTORIC PRESERVATION



The Johns Hopkins University Press
BALTIMORE AND LONDON

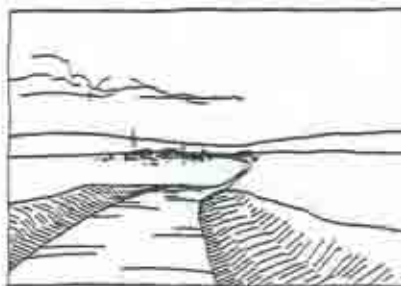
General Design Guidelines for Rural Development

Whether a community simply offers suggested guidelines or requires design review and approval, appropriate development in rural areas should respect certain aspects of design that contribute to the community's "sense of place"—those things that add up to a feeling that a community is a special place, distinct from anywhere else. It is often difficult to identify those things precisely. The illustrations for Hanalei, Hawaii (Case Study 7), may be helpful in understanding "sense of place." Concerned citizens may find themselves at a loss for words or concepts in explaining why they find some types of change disturbing. Indeed, communities often do not realize until it is too late that approved developments should not have been built the way they were.

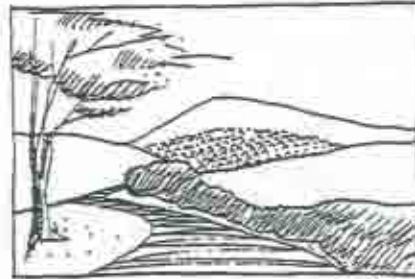
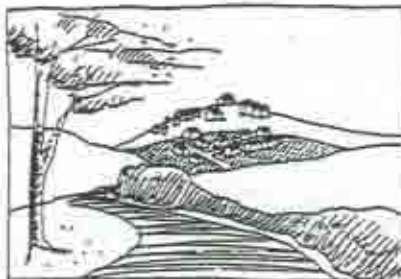
Sometimes it is useful to look at the individual elements of a landscape to help evaluate proposed changes and arrive at community value judgments about the visual impact of proposed changes. An architect or landscape architect can assist a community in reaching consensus about good design. The following discussion, while not comprehensive, raises issues that may be helpful in making design judgments. Although there can be differences of opinion on design issues, most people would agree that in each pair of drawings, below, the one on the right represents better design than the one on the left.

Character of Place. Special features and views contribute to a rural community's visual character. New development should be avoided in such areas, but if it is inevitable, new development should be designed sensitively to minimize visual intrusions. Developing designs that protect such features as stream crossings, unique rock outcroppings, significant vegetation, or a distinct village entrance preserves the special character of a community. New development also should not block or mar scenic views, particularly those visible from scenic roads, rivers, or trails.

Character of place: special features. The destruction of a hedgerow (left) eliminates a distinctive entrance to the town (right).

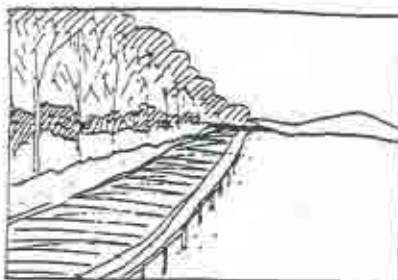
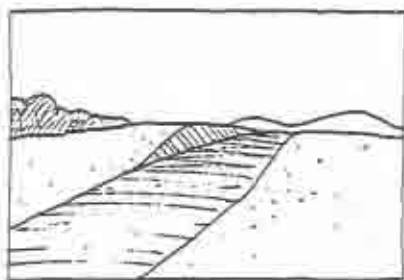


Character of place: views. A housing development sited inappropriately on a steep slope also mars a scenic view (left). At right, a distant orchard contributes to the agricultural character of the landscape and creates a scenic view; the housing has been constructed in a less obtrusive location in the community.

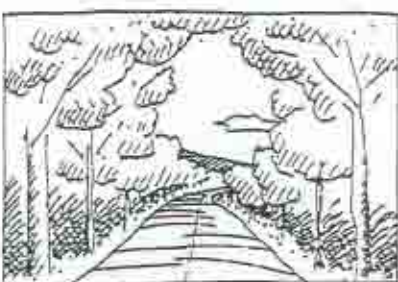


Roads. Many rural roads are narrow and bordered by vegetation. They generally follow old alignments developed in response to the topography and geography of the area.

Designs for new roads and alterations to existing roads should keep their physical impact on the natural and historic environment to a minimum. Where possible, roads should run with the contours of the land rather than across slopes. Extensive cutting through wooded areas to provide wide shoulders or planting along road edges in open areas alters the traditional character of a rural road. Roads should be designed to accommodate the anticipated volume of traffic—including pedestrians and bicycles—but should be kept as narrow as safety allows. Narrower roads may encourage drivers to slow down.



Roads: siting. The road passing through the middle of an open field intrudes in the landscape (*left*); it could be less intrusive placed along the edge of the field (*right*).



Roads: width. Excessive cutting destroys the wooded character of the land (*left*), while a narrow clearing along the right-of-way preserves the wooded character (*right*).

General Design Guidelines for Rural Development (continued)

Siting Buildings. In most communities, rural buildings traditionally have been sited with respect for the natural environment. Where possible, new buildings should be located in a manner that is in keeping with local building traditions. New buildings and structures should be located where their construction or access does not cause substantial modification to the topography and natural resources. New buildings also should be sited in relation to each other or to existing buildings in a manner that is in keeping with siting traditions. For example, on some farms, buildings are clustered for weather protection and easy access, while on others they are scattered in order to separate diverse or incompatible functions.

Building Design. Most communities have characteristic building types that occur more frequently than others. Local building traditions usually originated in response to available building materials, climate, and the ethnic origins and occupations of residents. The one-and-a-half-story wooden cottage, for example, is characteristic of many East Coast fishing communities, while the two-story brick or stone farmhouse predominates in the German-American communities of eastern Pennsylvania. New buildings and changes to existing buildings should be compatible with the community's existing buildings. It is not necessary for new buildings to imitate a particular historic architectural style. In fact, it is usually preferable for a new building

to appear as a product of its own time as long as it is compatible in form, scale, material, and color with existing buildings.

Roof pitches, building height, use of porches and courtyards, and building layout are some of the elements that help define the characteristic building forms of a community. If only gable and shed roofs, for example, are traditional in a community, gambrel, A-frame, or flat roofs may be visually incompatible. The size of new buildings and the proportion of such design elements as wings, porches, windows, and doors are also important in determining their compatibility with existing buildings and the natural environment. New buildings should not dwarf existing buildings; nor

Siting buildings: relationship to landforms and other natural features. Extensive cutting into the hillside is unsightly and can create erosion (left), whereas proper siting avoids substantial modification to a landform (right).

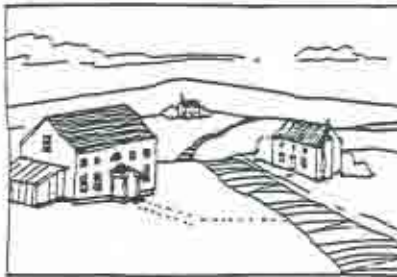
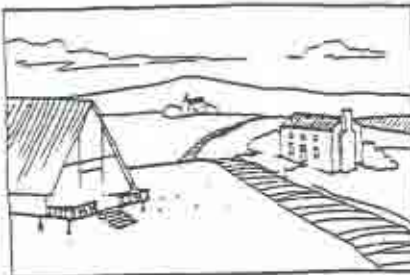


Siting buildings: relationship to other buildings and structures. When prefabricated agricultural structures are installed, they should supplement existing buildings, not replace them. Although the new structure (left) may be practical, it overpowers the existing barn. A new structure can be both practical and part of the total composition of the farm buildings (right).

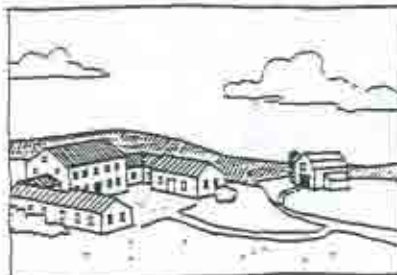


should they overwhelm nearby trees, rise above ridge lines, or tower above other landscape features. When a facility such as a school or factory needs a new building larger than the norm, it may be preferable to construct a cluster of buildings instead of one large building or to vary the heights of various parts of a single building to make it appear less monumental. Elements such as windows and doors also establish a building's proportion and can make a large building appear more compatible in scale to existing buildings if their placement is skillfully designed.

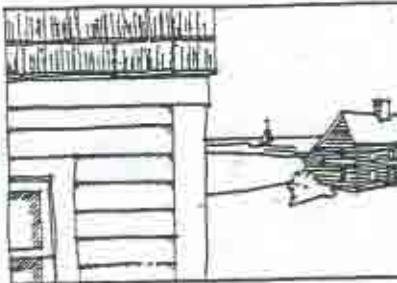
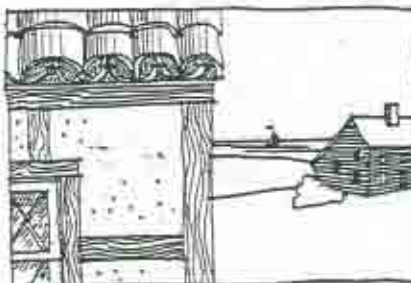
Where possible and appropriate, traditional materials and colors should be used to help new buildings be more compatible with existing buildings or complement the natural environment. Buildings with a natural color stain, for example, may blend into wooded areas more easily than those that are painted in bright colors. Roof colors can make a big difference in the visual impact of new development, with dark colors generally being less obvious.



Building design: form. The form and massing of the new building (*left*) does not complement the area's traditional architecture. Roof form, height, and massing can be designed so that a building is compatible with traditional community forms (*right*).



Building design: scale. A building typical of much new development dwarfs traditional building (*left*). A new building can be designed as a cluster of smaller parts to offer a sense of integrity to the landscape (*right*).



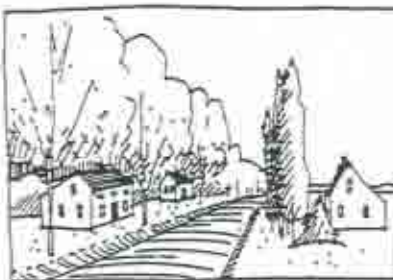
Building design: materials and color. The use of a tile roof and "Tudor" siding (*left*) seems inappropriate when compared to the materials and colors associated with a traditional Cape Cod dwelling. Complementary materials are used in the new building on the right.

General Design Guidelines for Rural Development (continued)

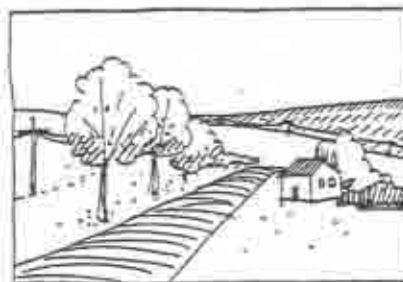
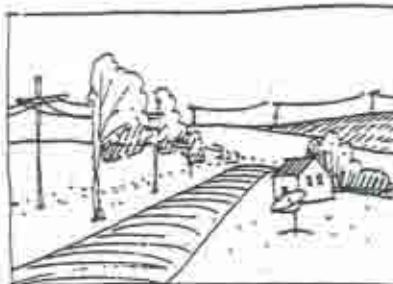
Vegetation. In addition to native vegetation, most communities have vegetation that has been introduced because of the preferences of its residents or climatic conditions. In addition, most communities have characteristic ways of grouping plants. The evergreen windbreak located north of the farmhouse to provide shelter from harsh winter winds and the hedgerow along fence lines are two examples. Traditional plant species and historic planting patterns should be retained wherever possible. New species should harmonize with existing vegetation and planting traditions. Planting species that will mature to obscure significant views should be avoided. Land along streets and roads is especially visible and should be planted in a manner compatible with local practice.

Utilities. Utility lines are often located without regard to their visual impact on scenic and historic resources. Locations of utility lines and their rights-of-way should avoid interfering, either physically or visually, with existing trees or other vegetation, buildings, or significant views. If lines must run above ground, poles should be set either well in front of roadside trees or far enough back to avoid the all-too-common row of half trees at the edge of the road. Similarly, satellite dishes, radio towers, and other utility structures should be located so that they do not mar views. Whenever possible, such structures should be painted dark colors so that they appear less obvious.

Vegetation. A distinct lack of harmony with traditional plant materials and planting patterns occurs on the left, while traditional plant species and planting patterns are retained on the right.



Utilities. Conspicuous utilities and damage to roadside trees (left) compare with utilities that are screened, set back, and run below the horizon (right).





Dealing With Change in the Connecticut River Valley: A Design Manual for Conservation and Development

Fourth Printing, December 1990

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Published by the Lincoln Institute of Land Policy and the
Environmental Law Foundation

Site A: Parsons' Mills

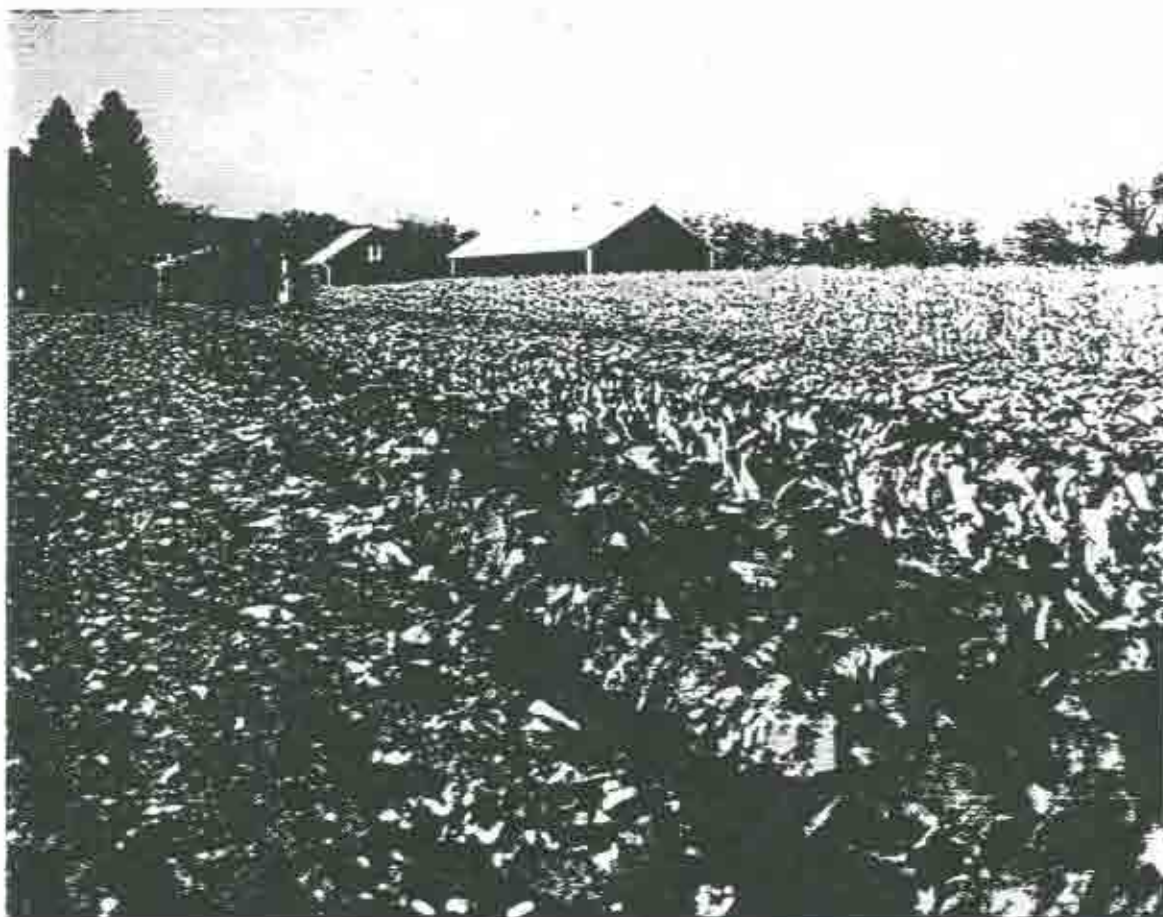
1) Existing Conditions:

Landform:	Alluvial Plain
Landuse:	Small, clustered New England village
Landcover:	Fields, Houses, Lake, Roads
Utilities:	Town Water, No Town Sewer
Zoning:	1 Acre Minimum Lot Size, 100 ft. Road Frontage

- * Houses and community buildings grouped along main road.
- * Farmland extends out behind houses to the banks of the Connecticut River.
- * Quiet community currently facing rising development pressures.

Located on a high alluvial terrace at the intersection of a stream and the Connecticut River, the site of the small village of Parsons' Mills has seen human habitation for over 6,000 years. A favorite encampment of the Pocumtuck Indians, the area is in close proximity to the water, while being elevated above spring flood levels. Early European settlers arrived during the mid-17th century, attracted by the rich soils and the potential for harnessing water power. A dam and a grist mill were built at a waterfall on the stream by Ezekiel Parsons, creating the present millpond to the north of the village. The mill was also located on the main road paralleling the Connecticut River. A small settlement soon grew up, including a church, a school, several small businesses and a handful of farmsteads with direct access to the fertile land that surrounds the village.





Whately

The form of Parsons' Mills is typical of small New England villages of the upper Connecticut Valley. Centered on the town hall, church and school, the village radiates out along the main street, a lightly-travelled state highway, and a secondary road heading to the southeast. The houses are typically located on odd, irregularly shaped 10,000 to 20,000 square foot lots with frontage on the principal streets of the village. Setbacks and house orientation vary somewhat but maintain an overall consistency which gives the village its unique form and historic visual character.

Consistency of form is created in Parsons' Mills through its architecture, the relatively close relationship of buildings to roadways and the village's response to the constraints imposed by topography and landscape features. This consistency was a result of building traditions, available materials, inability to overcome natural obstacles and the practical need for buildings to be located near roads and in close proximity to each other.

Within this overall consistency, a humanizing variety is created through minor variations in building location, orientation, size, form and setback from the street. These variations are a result of the gradual, organic way in which the village evolved over centuries, a result of the efforts of hundreds of individual builders working within the widely accepted social, aesthetic and physical constraints imposed by life during the 18th and 19th centuries.

Most of the homes in Parson's Mills were built by farmers who tilled the fields extending directly behind the houses. Many of them include farm-related outbuildings or attached barns. While the village once contained over twenty farm properties, a single large farm (Parcel A) now tills all the surrounding land either under direct ownership or through lease agreement.

2) Conventional Development Scenario

- * Large lot frontage and subdivision development.
- * Densities and setbacks of new housing unrelated to existing historic patterns.
- * Housing located in the middle of farm fields.
- * Unregulated parking lots destroy village character.
- * Lack of site planning or design controls on new commercial development.
- * Houses located adjacent to water bodies cause visual and environmental damage to banks.
- * Sprawling pattern of new development alien to village's historic settlement pattern.

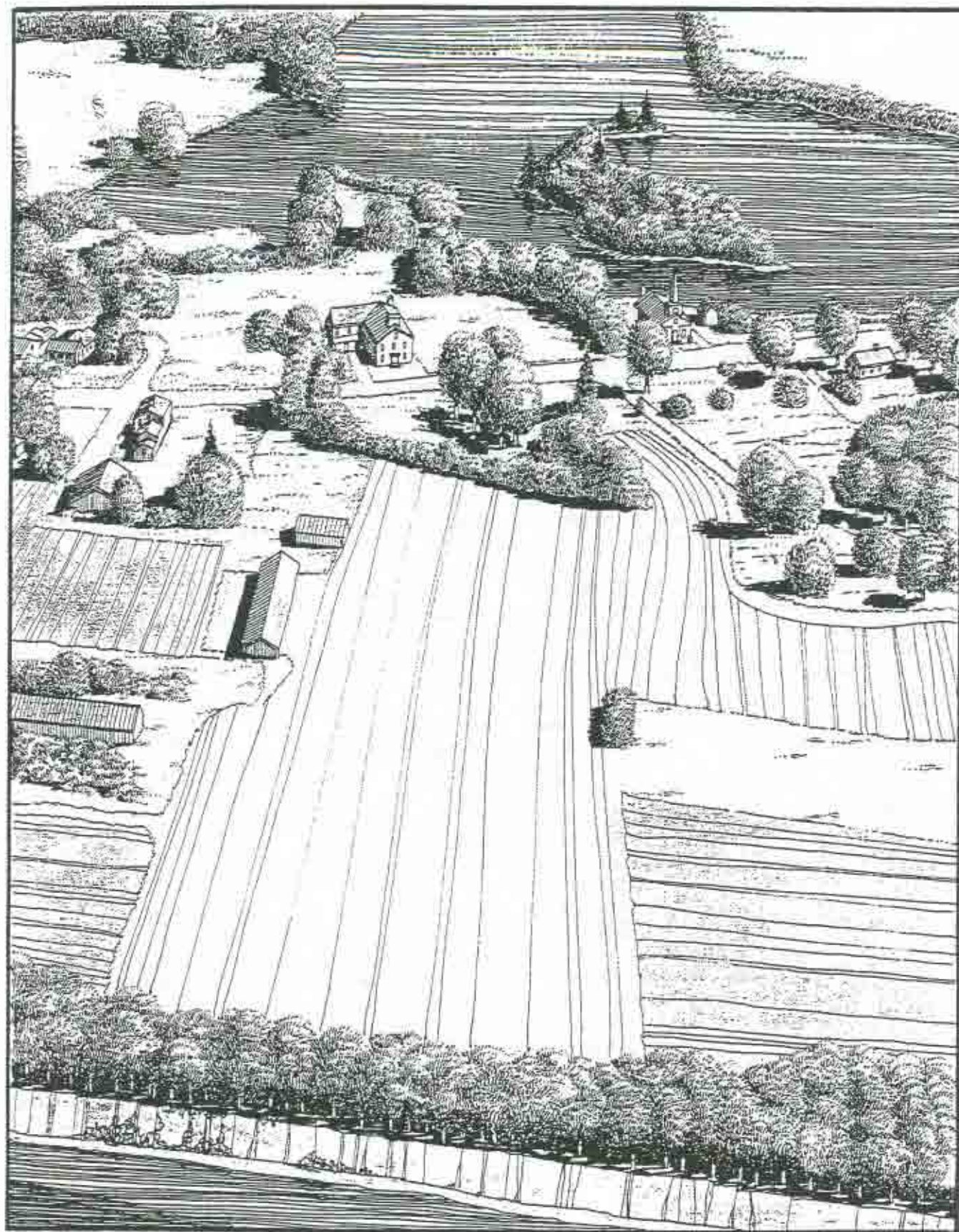
The residents of Parsons' Mill erroneously believed that their existing zoning bylaws and subdivision regulations would protect the character and environment of their community from new development. Instead, to their dismay, they witnessed a massive transformation of character from rural to suburban over the relatively brief span of twenty years. This is how it happened:

Warren Sibley, owner of the parcel A farm, sold road frontage lots over a ten year period to raise money to supplement his modest farm income. He sold two acres to a local developer who built a convenience store at the corner of Main Street and River Road. He also sold several 1 1/2 acre lots in his fields to the south of town to buyers who built large homes overlooking the river. After selling some of his best land and cutting off access to the river from his remaining property, Sibley's farm failed, in spite of the infusion of cash from lot sales. He sold his last acreage to a developer, who built a seven-lot subdivision in the center of the parcel. The town purchased the remaining land to the west for the construction of a new sewage treatment plant, located in full view of the village, and in the middle of Sibley's former corn field.

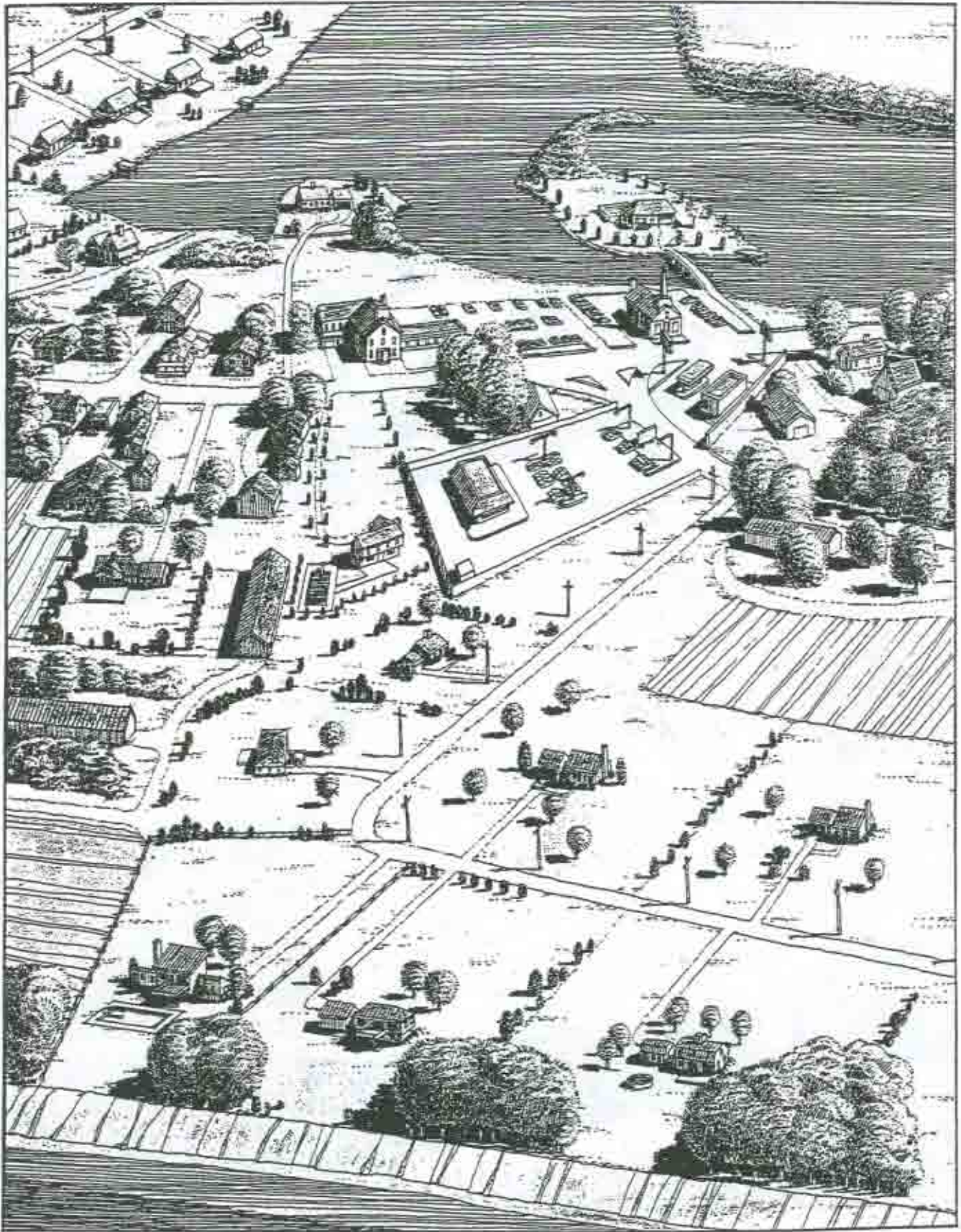
Parcel B, owned by farmer Stanley Pazinski, was sold to a local developer who planned a 14-lot subdivision on the property. the one-acre lots had a minimum of 100 ft. frontage on a 36 ft.-wide subdivision road laid out through the middle of Pazinski's former pasture. The plan met the town's subdivision regulations and zoning by-laws in every respect, but nevertheless destroyed the farmland, visual character and environmental quality of the riverbank.

Parcel C was owned by Mildred Parsons, an elderly widow whose husband Robert, great grand-son of the town's founder, had farmed the property for more than four decades until his death in 1972. Mildred didn't want to see the land developed, but financial need and relocation to a nursing home forced her to dispose of the property. She was finally forced to sell the land to a developer who planned a 16-lot subdivision accessed by two proposed cul-de-sac roads in the middle of the fields on the property. A parcel zoned commercial with frontage on Main Street was sold to a chain of convenience food stores which planned to build a new outlet on the property.

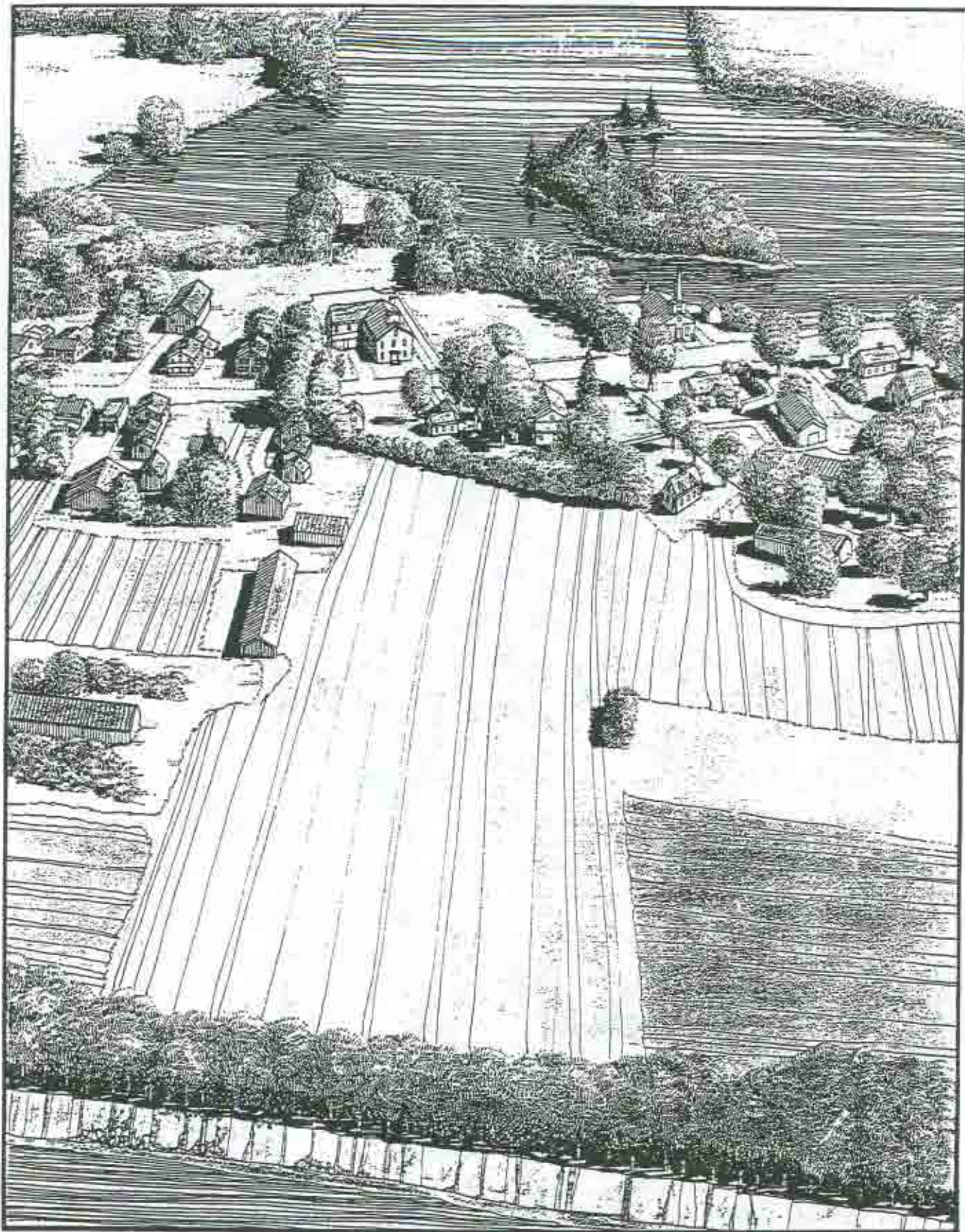
Adding a final coup de grace to the village, the state highway department widened and straightened Main Street through the center of town, pulling down three historic buildings and creating a major intersection at the junction of Main and River Streets. Attracted by the increased traffic on the new roadway, several roadside commercial enterprises were built along the new, "improved" main street. Since the town lacked a comprehensive sign ordinance or adequate controls on parking lot layout and lighting, the business development drastically altered the character of the village. New parking lots for the church and school destroyed the open spaces around these buildings. Old houses were torn down to be replaced by a convenience store and a hardware outlet. The new commercial buildings did not relate to the architectural character of the town and were surrounded by unbroken expanses of asphalt parking.



Aerial View of Site A Before Development



Aerial View of Site A After Conventional Development



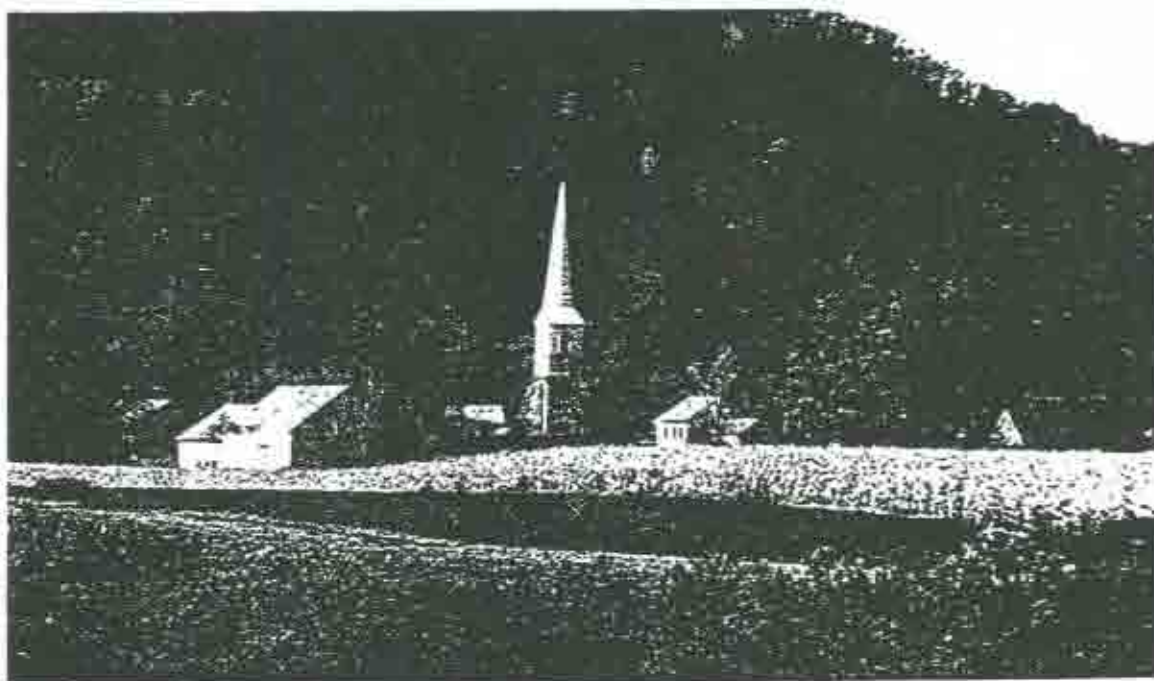
Aerial View of Site A After Creative Development

3) Creative Development Scenario

- * New development reflects existing settlement pattern and architecture of village.
- * Zoning modified to allow lot sizes and setbacks similar to existing village.
- * Architecture of new commercial development compatible with village.
- * Parking lots screened and located behind or at the side of commercial and institutional buildings.
- * Lighting controls to prevent over-illumination, glare.
- * Farmland and open space surrounding village preserved by clustering development at edges.
- * Development setback from lake and river.

The residents of the village, realizing that their current 1 acre, 100 ft. frontage zoning was a blueprint for the total transformation of the historic character and environment of their town, voted at Town Meeting to amend their zoning by-laws. First, they enacted a Farmland/Open Space Conservation and Development by-law requiring that any future subdivision involving open fields or pastures be designed so that all the houselots and new streets would consume no more than 50% of the farmland in the parcel. This allowed development to continue at the same overall densities allowed under the previous by-law, but required that new lots be grouped in the woods or at the edge of the farmland. Several lots could be as small as 1/4 acre, consistent with traditional village lots dating from the period during which the village had historically evolved, thereby allowing 75% of the land to be kept in agriculture. The by-law also included a "Site Plan Review" provision to allow the Planning Board to review and, if necessary, suggest modifications to subdivision plans submitted by the developer. This would allow the board to ensure that a proposed subdivision was laid out in a way that best preserved the agricultural, environmental and scenic portions of the property.

Secondly, the voters created a village district in the center of their town. Existing frontage and setback requirements were modified within this district to encourage new houses to be located closer to the street and on narrower, deeper lots in a manner similar to the historic pattern of the existing older houses. A site plan review provision was also incorporated in the village district, allowing the planning board to work with subdividers of land to ensure that new lot patterns blend in with the existing fabric of the village, and to ensure that new buildings would be sympathetic to the traditional architecture of the town.



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